THIS WEEK'S National Petroleum NEWS

Coming Meetings

American Chemical Society, Indianapolis, Ind., March 30 to April 3.

American Oil Burner Association, Ben Franklin Hotel, Philadelphia, Pa., April 13 to 18.

American Petroleum Institute, division of refining, semi-annual meeting, Hotel Statler, St. Louis, Apr. 15, 16.

Tennessee Oil Men's Association, Peabody Hotel, Memphis, Tenn., April 22.

National Petroleum Association, Hotel Cleveland, Cleveland, O., Apr. 23, 24.

American Gas Association, Natural Gas Department, Memphis, Tenn., May 11 to 14.

American Oil Chemists Society, New Orleans, La., May 14, 15.

Natural Gasoline Association of America, Mayo Hotel, Tulsa, May 19, 20, 21.

American Petroleum Institute, Division of Production, Baker Hotel, Dallas, Tex., June 3, 4.

American Society of Mechanical Engineers, National Oil & Gas Power meeting, Madison, Wis., June 15 to 18.

Geological Society of America, Mayo Hotel, Tulsa, Dec. 28 to 31.

NATIONAL PETROLEUM NEWS

Vol. 23 No. 12

Published by

The National Petroleum Publishing Co.
1213 W. Third St., Cleveland, O.
Tel. CHerry 7672

Branch Offices:

Tulsa, 904 World Bldg., Tel. 3-7132.
New York, 342 Madison Ave., Tel. Vanderbilt 3-3950 and 3-3951.
Houston, 2420 Gulf Bldg., Tel. Fairfax 6286.
Chicago, 35 E. Wacker Drive, Tel. State 4141.

Subscription rate $3.50 per year, U. S., Mexico and Canada; $5 Foreign countries. Current copies 10 cents; for back issues more than two months old 25 cents per copy.

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Member Audit Bureau of Circulations and Associated Business Papers.

General

Gulf to Extend Markets in Lake States after $82,500,000 Outlay in 1930 19
Oil Industry's Progress Toward Stability 22
A. P. I. Report of Refinery Operations, Week Ended March 21 23
Call Meeting of Refiners on Pipeline Rail Rates 24
Commission Order May Bring East Texas Into States Proration Program 29
Moody Not to be Chairman if Texas Creates New Oil Board 30
Oil States to Propose Relief Program at Washington Conference 35
New Kansas Proration Law Not Effective for Some Time 39
Oklahoma Proration is Continued for Indefinite Period 40
Big Gas Production Brings Changes in Gas Traps 44
Co-Operative Association Formed by California Producers 44
Deep Wells Were Built Straighter in 1930, A. I. M. E. is Told 45
L. P. Garrett Elected President of Geologists Association 47
U. S. Crude Production by Fields, Week Ended March 21 81

Merchandising

"Grease It, Please" by the "Two-Gallon Buyer" 25
Most Oil Companies Rent Stations in Florida to Operator 69
Charleston Oil Co. has Visible File on All Operating Details 72
Split Accounts—*by C. S. Smith* 77
Merchandising and Jobbing Ideas Marketers are Practicing 80

Engineering

Pure Builds Toledo Plant to Process Michigan, Van Field Crudes 31
Pyrolysis and Destructive Hydrogenation of Heavy Crude Oil Fractions Part I—*by V. N. Ipatyev* 49
New Distillation System Employs Thin Film Principle 59

Markets

Chicago, New Q. D. A. Holds Attention of Chicago Trade 85
Mid-Continent, Gasoline Markets Show Gradual Improvement 87
Refinery Price Tables 88, 90, 91
California, Crude Cut Sends Refined Oil Prices Lower 94
Pennsylvania, Demand Generally Satisfactory 95
Eastern, Trading Light with Conditions Unsettled 96
Gulf, Demand Quiet; Light Oil Prices Recede 96
Wax, Buying Quiet; Scale Quoted Lower 96
Complete Seaboard Prices 98
Tank Wagon Price Tables 100, 101
Aviation Gasoline Price Tables 101
Crude Oil Prices, All Fields 103, 105

Departments

The Editor's Viewpoint 21
The Mid-Continent Skyline 41
Our Industry 46
New Patents 66
New Refining Patents 68
New Stations Building 78
On the Lazy Bench 79
Oil Company Finance 106, 108, 110
N. P. N. Service Record 109

The Oil Industry's Second Col. Drake

J. FRANK DRAKE, newly elected president of the Gulf Oil Corp., has been connected with Mellon companies since June, 1919, when he left the army claims board on which he had served with rank of Lieutenant Colonel. He first was assistant to W. L. Mellon, president of the then Gulf Oil Co., predecessor of the present holding corporation.

During the Harding and Coolidge administrations Colonel Drake served Secretary of the Treasury Andrew W. Mellon in a confidential capacity. In January, 1923, he became vice president of the Standard Steel Car Co. and the next November its president. When this company was merged with the Pullman companies March 1, 1930, he was elected chairman of Pullman, Inc.

Colonel Drake also is president of the Standard Car Securities Co. and Standard Car Finance Corp. He is a vice president and director of the Pittsburgh Equitable Meter Co. and a director of the American Rolling Mill Co., Middletown, O., and a number of other corporations.

It was through his service in the army ordnance department at Pittsburgh that Colonel Drake came to the attention of the Mellon interests. Before the war he was at Springfield, Mass., as secretary of the board of trade and later an officer of the Phelps Publishing Co. He was born at Pittsfield, N. H., Sept. 1, 1880.

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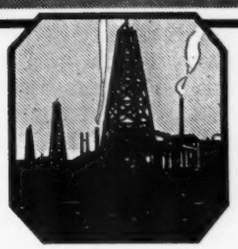
Published at
1213 W. Third St.
Cleveland



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Tulsa, New York, Houston, Chicago

Vol. 23 **CLEVELAND, March 25, 1931** **No. 12**

Gulf to Extend Markets in Lake States After $82,500,000 Outlay in 1930

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, March 24 GULF Oil Corp., with the completion of its new pipeline system from Tulsa, Okla., to Lima, O., and of refineries at Cincinnati and Toledo, O., and Pittsburgh, Pa., will spread its marketing facilities into the territory east of the Mississippi river and in the Great Lakes area where it has not marketed its products direct before.

This announcement was made in the corporation's annual report. The expansion of marketing territory follows the expenditure of more than $82,500,000 in 1930 on properties, plant and equipment.

The enlarged activities of the Gulf corporation will be under the direction of a new president—J. Frank Drake, a Mellon man of almost 12 years' standing, who has been chairman of Pullman, Inc., and president of the Standard Steel Car Co.

W. L. Mellon, who has been president of Gulf Oil Corp., has been elected chairman of the board of directors. F. A. Leovy, president of the Gulf production and pipeline subsidiaries, and vice-president of the parent company, becomes vice-chairman of the parent company. Mr. Drake was elected a director of Gulf Oil Corp. at the annual meeting last week in Pittsburgh, filling the seat vacated by G. H. Taber.

It was announced also that net earnings of Gulf and subsidiaries including Union Gulf Corp. and underlying companies, amounted to $10,625,252 in 1930. This sum averaged $2.35 per $25 par common share. In 1929 the corporation and subsidiaries netted $44,489,685 or $9.83 per share. The company wrote off $17,149,986 as a decline in value of oil inventories.

The story of Gulf's decline in net earnings is the story of last year's low prices for refined products. Volume of gasoline and oil sales in 1930 exceeded the volume of 1929 sales, W. L. Mellon reported to stockholders, but value of the sales, after deduction of gasoline taxes paid, was $17,000,000 less than in 1929.

"The inventories of crude and refined oils, conservatively valued at the lower of cost or market, show a decline in value of $17,149,985," Mr. Mellon reported. "This is due in part to a reduction of 4,108,307 barrels of oil in storage and to the reduction in prices aggregating more than $12,400,000 made necessary to meet the present market value of products on hand."

Gulf's total production in 1930 amounted to 75,844,031 barrels, a daily average of 206,792 barrels. The net production, after deduction of royalties, amounted to 64,163,653 barrels, a daily average of 175,790 barrels. Although the company had a larger potential production last year than in 1930 the actual production was 15,914,903 barrels less. The production came from fields in Kansas, Oklahoma, Texas, New Mexico, Arkansas, Louisiana, California, Venezuela, and Mexico.

"This decrease," Mr. Mellon commented, "was wholly due to carrying out the general policy of conservation and proration, and necessarily had a direct and detrimental effect upon net earnings."

Concerning the outlook he said:

"The volume of the corporation's sales is being maintained, but owing to prevailing economic conditions, prices con-

tinue too low to earn a satisfactory return; in fact in some sections, prices prevailing are below cost. The corporation expects with its new pipeline, refineries and marketing developments, which should be in full operation during the year 1931, to effect substantial economies in transportation and distribution, and to begin building up a profitable outlet for manufactured products in the East North Central area and other points on the Ohio and Mississippi rivers and the Great Lakes not previously served."

	1930	1929
Amerada Corp.	$3,961,476	$2,758,900
Atlantic Refining Co.	2,742,688	17,332,418
Barnsdall Corp.	5,130,890	7,205,161
Claremont Oil Co.	*20,783	*20,768
Colonial Beacon Oil Co.	*2,414,023	247,615
Columbia Oil & Gas Co.	2,703,225	
Continental Oil Co.	255,598	9,028,660
Darby Petroleum Corp.	362,198	1,155,582
Derby Oil Co.	671,975	335,362
El Dorado Oil Works	159,506	514,814
Honolulu Cons. Oil Corp.	2,120,472	5,339,524
Kirby Petroleum Co.	202,779	
Lion Oil Ref. Co.	*536,016	1,184,478
National Refining Co.	1,002,386	1,845,485
National Transit Co.	609,400	900,462
Ohio Oil Co.	10,630,015	12,347,649
Pandem Oil Corp.	11,890	
Phillips Pet. Co.	3,040,630	13,212,591
Prairie Oil & Gas Co.	2,216,084	14,331,643
Producers & Refiners Corp.	*1,985,683	*1,136,637
Prairie Pipe Line Co.	14,637,625	22,800,453
Red Bank Oil Co.	†160,963	†519,178
Reiter-Foster Oil Corp.	42,302	229,184
Rio Grande Oil Co.	3,379,787	5,659,943
Salt Creek Producers Assn.	‡2,306,663	‡2,723,991
Signal Oil & Gas Co.	689,716	1,280,829
Simms Petroleum Co.	*1,475,518	2,328,802
Standard Oil Co., California	37,675,300	46,633,490
Standard Oil Co., Kentucky	5,253,181	6,652,992
The Texas Corp.	15,073,303	48,318,072
Texas Pacific Coal & Oil Co.	*970,272	787,286
Tide Water Associated Oil Co.	8,750,914	14,000,688
Tide Water Oil Co.	2,368,842	6,187,724
Associated Oil Co.	7,215,284	8,940,699
Union Tank Car Co.	2,546,464	3,666,589
Venezuelan Pet. Co.	291,129	371,630
Washington Oil Co.	37,690	152,314

*Loss. †Before depletion, depreciation and federal income taxes. ‡Before depletion.

The $82,560,956 expenditures on fixed assets last year were distributed as follows:

Production department	$16,115,497
Pipeline department	13,493,964
Three new refineries and improvements to old	27,767,150
Marketing department	22,220,195
Gulf building, Pittsburgh	2,159,216
General items	804,934

The expenditure in the marketing department included the acquisition of 344 bulk and retail service stations in Ohio and Michigan from the Paragon Refining Co., Toledo.

Operations in the New Pittsburgh refinery began the first week in February, Mr. Mellon announced. Operations will begin about April 1 in the new Toledo plant and before Aug. 1 at Cincinnati.

These refineries with the new pipeline system which ties in with the Buckeye pipeline system near Lima, are expected to effect considerable economies in the transportation and distribution of Gulf products in the territory from western Pennsylvania to the Mississippi and as far south as Memphis, Tenn.

Gulf Oil Corp. owns 45 per cent of the 1000 shares of $100 par stock of the Union Gulf Corp. The other 55 per cent is owned by certain stockholders of the Gulf Oil Corp. Gulf has guaranteed the $60,000,000 5 per cent bonds of Union Gulf and has contracted to buy the assets of Union Gulf on or before June 30, 1950. No dividends are to be paid by Union Gulf while bonds are outstanding but Gulf Oil has agreed to pay for the assets a price sufficient to pay all debts of Union Gulf and stockholders 5 per cent a year on their investment.

Consolidated balance sheet of Gulf Oil, Union Gulf, and subsidiary companies of Dec. 31, 1930, shows total assets of $761,575,906 before reserves and $486,539,600 after reserves. Properties, plant and equipment were carried at $587,751,204, before depreciation and depletion reserves, compared with $526,395,709 and the end of 1929. Total assets at the end of 1929 were $686,-722,371.

Current assets Dec. 31, including $16,433,555 cash, amounted to $140,748,482 and current liabilities to $19,895,-403. The oil inventory was $65,029,844, compared with $82,179,830 at the end of 1929.

Funded indebtedness Dec. 31 amounted to $125,904,000, including the $60,000,000 bonds of the Union Gulf Corp., compared with $65,414,000 Dec. 31, 1929. Earned surplus at the end of 1930 amounted to $210,-016,214 after payment of $6,-787,906 dividends, compared with $205,875,130 at the end of 1929.

COMPARATIVE CONSOLIDATED INCOME ACCOUNTS
GULF OIL CORP. AND SUBSIDIARIES

	1930		1929	
Gross operating income		†$257,199,650.45		$272,413,238.69
Costs, operating and general expense	$153,745,916.09		$139,640,551.77	
Decline in oil inventory value	17,149,985.59			
Gasoline taxes assessed*	24,190,752.19		20,655,643.54	
Other taxes	6,256,847.15	201,343,501.02	9,480,218.96	169,776,414.27
Operating income		$55,856,149.43		$102,636,824.42
Intangible development costs	8,785,386.76		14,465,616.31	
Depletion, depreciation, retirements	36,299,314.68	45,084,701.44	44,066,148.73	58,531,765.04
Net operating income		$10,771,447.99		$44,105,059.38
Non-operating income		5,236,354.06		4,116,524.90
Total income		$16,007,802.05		$48,221,584.28
Interest		5,358,467.84		3,696,789.23
Profit applicable to minority interests		24,081.93		35,109.32
Net profit accrued to corporation		$10,625,252.28		$44,489,685.73
Net profit per share		$2.35		$9.83

*Also collected $7,397,236.08 gasoline taxes for states in 1930 and $6,537,905.03 in 1929, making total gasoline taxes paid in 1930 $31,587,988.27 and in 1929 $27,-193,549.03.

†Contains Union Gulf Corp. and subsidiaries.

Crude Stocks Continue to Decline

NEW YORK, March 20.—A decrease of 2,191,000 barrels in pipeline and tank farm gross domestic crude oil stocks was recorded east of the Rockies in February, according to the American Petroleum Institute. This follows a decrease of 956,-000 barrels in January, and one of nearly 3,000,000 barrels in December, indicating a total decrease of some 6,000,000 barrels in these stocks since November.

The Editors' Viewpoint

Have a Heart, Mr. Buyer

WE HEAR a lot these days about making profits out of savings. That's fine; but the trouble is that every buyer forgets that he is a seller and every seller forgets that he is a buyer.

The rough tactics of buyers in these days of falling market are nothing short of criminal—and we say this with all due respect to the purchasing departments. They only do what is natural and human and generally only follow out what weak selling indicates is possible. In fact the well organized purchasing departments are more likely to be easier on the often-times soft hearted seller than the smaller outfit whose boss is both buyer and seller.

The more we can realize that our own selling is offset by our buying and that our own buying is offset by our selling, the better off business generally will be.

The "war" between the jobber and the refiner goes back to the beginning of the oil industry—and to most people that is the beginning of time. When it is a bear market, what the refiner says of the jobber we cannot print. When it is a bull market what the jobber says of the refiner has to be thoroughly filtered before it can be repeated.

And then when a lot of supply and equipment men may have over produced the oil industry's requirements, well the supply men do not say much for publication but privately they do a lot of talking. Every few years the supply men of all divisions of the oil industry get themselves into such a position that their salesmen bring in a lot of hard luck stories from the buyers—about how "so-and-so" has "quoted" a lower price, etc., etc., etc.

Every seller has the right to state his price and his terms and he is entitled to have the prospective buyer accept his statements as true. If his price and his terms are not satisfactory, the buyer has the right and should refuse to buy. That settles it. There is no argument. That is presumably the way the buyer wants his own salesmen received.

The buyer—and he is and always must be a seller—has his day in court. When the market is weak he gains, or thinks he does, by breaking down the price and terms of those who are selling him; but, at the same time, all other buyers are busy doing the same thing to his own salesmen. When the market is "strong," that same buyer is busy jacking up his salesmen to get the best price possible, the same thing that those who sell him are also doing to their own salesmen.

Perhaps the whole business evens out. How much better off might we all be—how much better might our relations be—how much less useless language and hard feelings might we avoid—if we only realized that we are always just buyers-sellers and sellers-buyers.

—W. C. P.

Good Gasoline Business

THE gasoline business is going to be good this year.

Any other industry assured an increase in demand for its principal products of from three to five per cent over 1930, on top of a 1930 demand which was that much above 1929, the high water mark for business generally, would consider itself in clover.

How profitable the oil industry makes this enormous gasoline business this year depends on the companies selling this product, large and small.

The crude oil producers are doing a magnificent job, for the country as a whole, in avoiding bringing a surplus of crude from the ground. Refining districts and individual refining companies, with few exceptions, have exercised restraint in their operations over the winter, and gasoline stocks in this country are less now than they were a year ago.

If those executives directing the distribution to the public of some 16 billion gallons in this country this year (just try to comprehend this figure) will exercise the same degree of judgment, the distributing branch of the industry can make a normal and reasonable profit on this tremendous business.

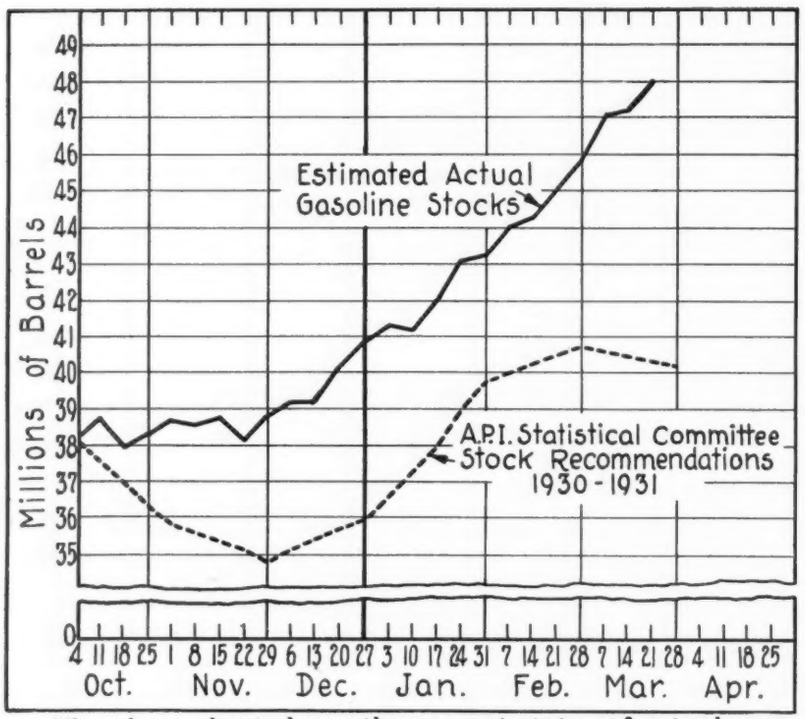
Exercising judgment will mean refusing to fall for the story some salesman will bring in that competitors are cutting prices to get business, stories inspired in most cases by unscrupulous buyers out of whole cloth.

It will mean close analysis of all the factors in one's marketing territory that indicate what gasoline demand will be this year for particular districts, and sales effort by each company to secure its normal proportion of that new business.

It will mean closer study of sources of supply at refineries in relation to consuming areas. New rail rates are going into effect. Gasoline pipelines are more of a factor in distribution. New crude oil producing districts are to be considered.

An immense volume of profitable gasoline business is before the industry, if it will develop it along sane business lines.

Oil Industry's Progress Toward Stability


Millions of Barrels
Estimated Actual Gasoline Stocks
A.P.I. Statistical Committee Stock Recommendations 1930-1931
Oct. Nov. Dec. Jan. Feb. Mar. Apr.

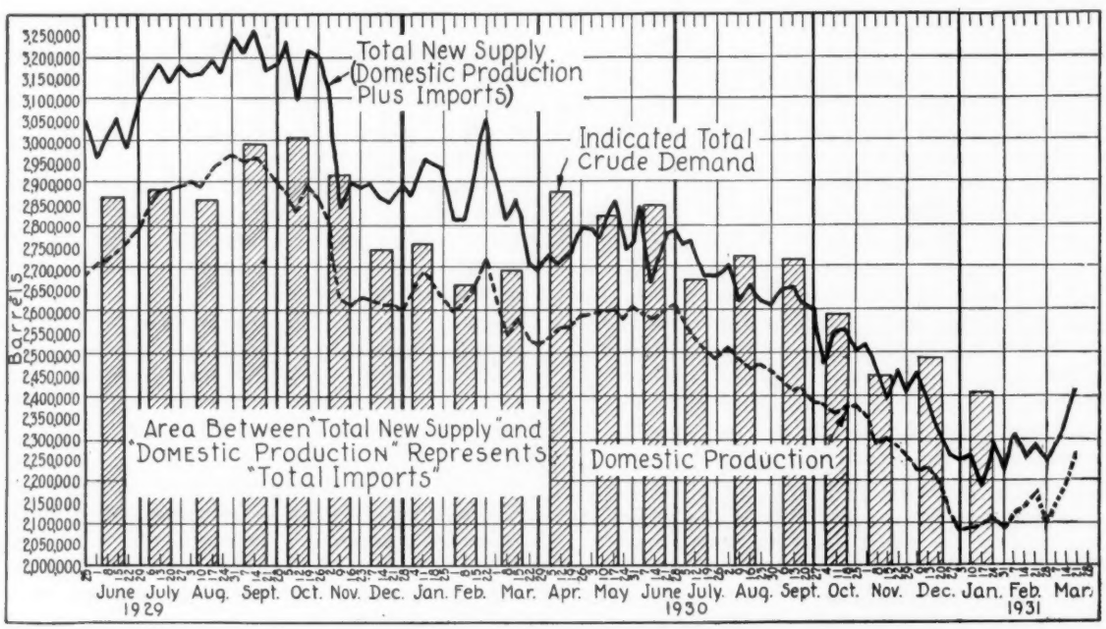
The above chart shows the present status of actual gasoline stocks at refineries in this country (solid line) as compared with the recommendations in the report of the A. P. I. committee for stocks for various periods (dotted line) to bring the industry out April 1 with total stocks of 40,000,000 barrels.

OPEN-flow tests of Seminole district wells in Oklahoma and mounting East Texas production brought domestic crude output up 77,500 barrels daily average to 2,268,000 barrels per day in the week ended March 21.

East Texas production increased 9250 barrels daily average. Both Longview and Kilgore fields increased output 7000 barrels daily average but Joiner field output dropped 5500 barrels.

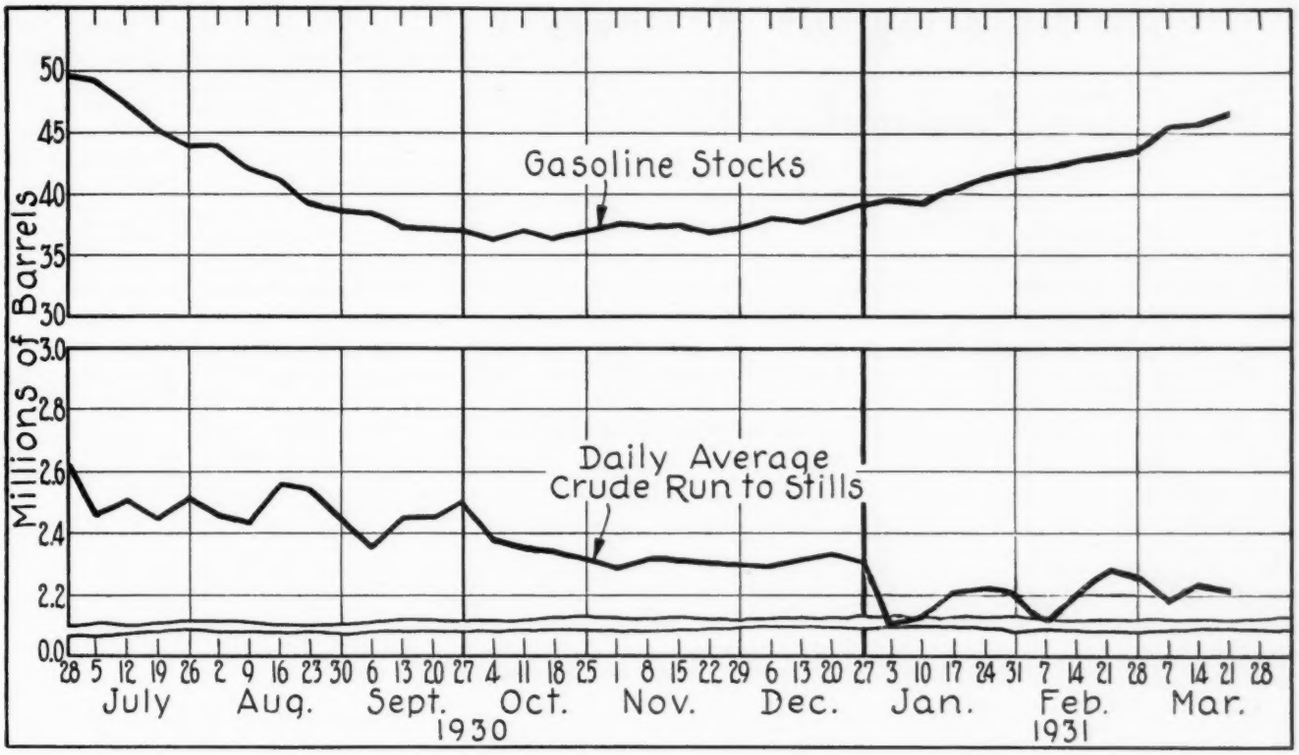
Oklahoma production increased 62,000 barrels. Most of this was in the greater Seminole district although there was an increase of 16,500 barrels at Oklahoma City where certain wells are making up back production due them.

Crude oil imports averaged nearly 150,000 barrels during the week, an increase of about 20,000 barrels. Total new supply of crude was 2,414,000 barrels per day, a gain of 96,000 barrels over the previous week.


Barrels
Total New Supply (Domestic Production Plus Imports)
Indicated Total Crude Demand
Area Between "Total New Supply" and "Domestic Production" Represents "Total Imports"
Domestic Production
June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1929
1930
1931

This chart shows crude oil supply from week according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns).

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



U. S. Gasoline Stocks Increase 937,000 Barrels

By Telegraph
NEW YORK, March 24

STOCKS of gasoline at refineries reporting weekly to the American Petroleum Industry increased 937,000 barrels in the week ended March 21. Total stocks on that date were 46,758,000 barrels. This was an increase of 1,966,000 barrels since Feb. 28.

Since refineries reporting to the institute represent 95.7 per cent of the nation's operating capacity it may be estimated that total stocks at refineries on March 21 approximated 48,000,000 barrels. This is 8,000,000 barrels higher than the level recommended to the industry for April 1.

Except for Louisiana and Arkansas, every group in the county added to stocks the third week of March. The East Coast district led with an increase of 350,000 barrels. Texas refiners added 232,000 barrels to storage and Indiana-Illinois 195,000 barrels. Both California and Oklahoma-Kansas added more than 100,000 barrels.

Crude runs of all reporting plants averaged 2,297,000 barrels per day, or 64.3 per cent of capacity. This was a cut of 17,400 barrels daily average from the previous week when 64.8 per cent of capacity was utilized.

Fuel and gas oil stocks increased 333,000 barrels during the week to 127,691,000 barrels. On Feb. 28 heavy oil stocks were 1,454,000 barrels higher than on March 21.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels) Gasoline		Gas & Fuel Oil		Cracked Gasoline Production % of Total Capacity Reporting	Daily Av. Production (Barrels) Week Ended	
		Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 14	Mar. 21	Mar. 21	Mar. 14
East Coast	100.0	459,400	497,600	75.0	81.2	8,689	8,339	7,180	7,390	90.3	79,400	76,600
Appalachian	93.8	94,000	81,700	70.9	61.7	1,662	1,590	1,163	1,102	94.6	19,300	18,200
Ind., Ill., Ky.	97.5	303,200	287,400	79.6	75.4	5,616	5,421	3,066	3,039	95.2	63,700	65,400
Okla., Kans. Mo.	89.4	250,100	248,400	60.7	60.3	3,473	3,346	3,547	3,734	90.0	54,100	53,100
Texas	91.9	536,300	555,700	72.1	74.7	7,767	7,535	8,178	7,980	95.9	116,700	95,400
La., Ark.	98.3	145,000	140,700	55.3	53.7	1,913	2,029	2,372	2,319	97.7	29,300	36,600
Rocky Mountain	93.1	48,000	43,900	34.4	31.4	1,874	1,860	838	852	100.0	12,300	13,300
California	98.8	461,000	459,000	51.9	51.7	15,764	15,641	101,347	100,942	100.0	40,000	49,000
Total	95.7	2,297,000	2,314,400	64.3	64.8	46,758	45,821	127,691	127,358	94.9	414,800	407,600
Texas (Gulf Coast)	100.0	400,000	426,400	75.5	80.5	6,580	6,292	5,923	5,748	98.5	96,400	78,900
La. (Gulf Coast)	100.0	97,000	93,600	65.8	63.5	1,719	1,820	1,330	1,286	100.0	21,600	28,300

Call Meeting of Refiners On Pipeline-Rail Rates

By Telegraph

TULSA, March 24

ASSERTING that the proposed reduction in rates for refinery and pipeline terminals announced in the bulletin issued March 6, by the Western Trunk Line Committee is contrary to the interests of refineries in the Mid-Continent and southwest not affiliated with gasoline pipelines the Anderson-Prichard Oil Corp. of Oklahoma City has suggested a meeting of traffic managers of all such refineries to be held in the Texas Hotel, Fort Worth, April 6.

The call for such a meeting signed by M. H. Champion, traffic manager for Anderson-Prichard is addressed to 45 refining companies in Arkansas, Texas, Oklahoma and Kansas. In the letters Mr. Champion says, "There is no question in our minds but what these companies so affiliated with the pipelines are going to take full advantage of their lower transportation costs to secure the business you now have in the immediate territory to these lines.

"It looks very much as though the railroad companies are playing into the hands of the pipeline companies for the reason that in Bulletin No. 2916 issued on March 6, by the Western Truck Line Committee it is proposed to reduce rates from refinery and pipeline terminances approximately 50 per cent.

"The railroads claim the purpose of this is to meet truck competition, but in our opinion it plays absolutely into the hands of the pipeline companies and if such rates are established it will mean that refining companies located as you and ourselves will be absolutely shut out of all territory within 125 miles of the points set out in this bulletin."

In the call for the meeting Mr. Champion suggests formation of a permanent organization to deal with this and related questions. The date and place of the meeting are subject to change if a majority of the refiners addressed ask for other arrangements.

Pioneer Cleveland Oil Compounder Dies

CLEVELAND, March 24.—A heart attack resulted in the death March 14 of Jeremiah T. Murphy, founder and president of The Phoenix Oil Co. here, compounder of lubricating greases, oils and soaps. He was 74 years old.

Mr. Murphy was one of the pioneers in the oil industry in Cleveland having entered the employ of the old Corrigan refinery back in the 80's. This plant was one of the many later acquired by Rockefeller, James Corrigan, Sr., leaving the oil business to enter steel and organizing the present Corrigan McKinney Steel Co. of Cleveland.

Mr. Murphy founded his oil company in 1890. He has been actively engaged in it since that time. Two sons, three daughers and his wife, Mrs. Mary L. Murphy survive him. Both sons are executives of the company. Raymond M. Murphy is a director and Murlan J. Murphy is secretary and treasurer.

He was buried March 18 in Calvary Cemetery, Cleveland.

Correction

ON PAGE 46 of this issue is a photograph of P. M. Miskell, vice president of the Empire Oil & Refining Co.; W. S. Fitzpatrick, chairman of the Prairie Oil & Gas Co.; and George D. Locke, vice president of the Barnsdall Refining Co. The picture was snapped at the recent convention of the Western Petroleum Refiners Association at Excelsior Springs, Mo.

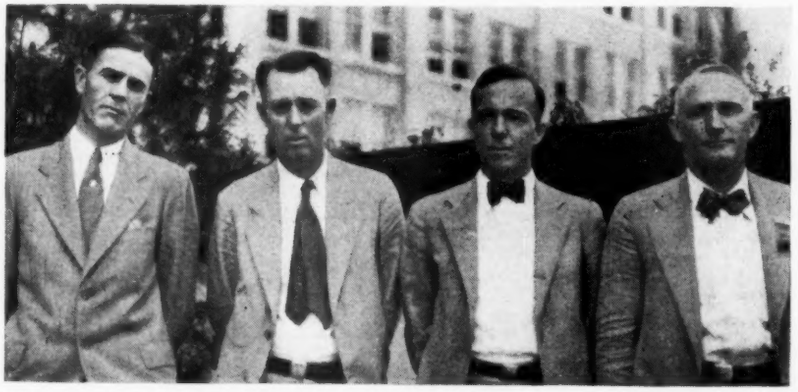
Cut lines under the picture wrongly described the group as being officers of the Oil Scouts Association. The group of scouts correctly described is shown elsewhere on this page.

Continental Refining Co. President Dies

OIL CITY, March 24.—A. F. Anderton, president of the Continental Refining Co. here, died March 20 at the age of 41. Death was caused by pneumonia and heart complications.

Mr. Anderton, whose father, Thomas Anderton, founded the Continental company in 1885, had been head of the company since his father's death in 1915. Two brothers, T. A. Anderton, treasurer of the company, and Joseph W. Anderton, secretary and assistant treasurer, survive him; also a sister, Mrs. F. S. DeArman.

He was buried March 23 in St. Joseph's Cemetery here.



Officials of the National Oil Scouts Association, left to right: J. V. Adams, president; G. C. Phillips, vice president; J. E. Beall, secretary-treasurer; W. E. Whitcomb, chairman of executive committee

«Grease It, Please!»

The Two Gallon Buyer Begins a Survey of Salesmanship and Service at Lubrication Stations

CLEVELAND

THE Two Gallon Buyer has turned to car lubrication. How thorough are the lubrication jobs done by oil company stations and by car dealers' service stations, and which type of station does the better job, the oil station or the car dealer station, were two questions asked of the buyer.

To get a cross-section of the work done by oil company and car dealer stations 14 of the former and five of the latter were visited in Cleveland. Most of the oil company stations gave free services the car dealer stations did not give. Car dealer stations—working on the makes of cars sold and serviced there—missed no lubrication points although some of the oil company stations did.

Four of the 14 oil company stations exhibited lubrication charts for the particular models and makes of cars brought in for lubrication but only one station actually made use of the chart in checking the work being done. Only one of the car dealer stations used a chart but familiarity with the make apparently made close use of charts unnecessary with the experienced workmen.

The station that made close use of charts placed one chart on the hood so the man who worked on the upper part of the car could see it. Another chart was attached to a rear bumper for the use of the man who worked under the car.

Work at this oil company station was very thorough, said the Two Gallon Buyer. No point was missed. Not only did the men check themselves with the charts but a supervisor kept close watch on the job. The supervisor seemed to take a personal interest in the work. He dipped his fingers into different cans of lubricants, demonstrated the differences in the greases, and explained the particular uses of them to the Buyer.

This supervisor was also a salesman. He checked the oil while the car was being lubricated and called the Buyer's attention to the fact that the oil was black and needed changing. Most of the stations tried to sell gasoline after the greasing had been done.

Nine of the 14 oil company stations did not miss a point. Three stations missed one point each; one missed three, and one missed four.

"The station attendant who missed four fittings went about his work in a very inefficient manner," said the Buyer. "After I was quite sure that he was through with all the points of lubrication about the motor and was putting the hood down, I pointed out two places that he had missed. One was a grease cup and the other was a high pressure fitting. When the attendant has taken care of these two places he turned to me and asked if I knew of any more places. I told him I didn't know of any.

"Later I noticed him wandering about the car with a grease gun in his hand. I asked him what he was looking for. He said he was looking to see if he had missed anything. I had noticed two places he had missed but said nothing until he had said he was through. I then pointed to the place for greasing the brake across shaft bearing and the front bolts of the rear springs. The car was a Buick and had places on each side for greasing these points. He had missed both sides.

"This incident was an unusual example and not at all representative of the work usually done at the oil company stations."

At one car dealer station, at which a job above the average was done, the car was not only

IN HIS first survey of service and salesmanship at oil company and car dealer greasing stations the N. P. N. roving investigator had 19 different cars lubricated. In every case a car was taken in which obviously needed grease. Some were rented from a drive yourself agency and others borrowed from other employees of this publication.

Makes of cars greased included Ford, Chevrolet, Chrysler, Buick, Oldsmobile, Marquette, Hupmobile and Lincoln.

Reports of other surveys of lubrication service and of general sales effort at oil company stations in various cities will appear from time to time in the future. An early report will describe the high level of salesmanship at Detroit stations. Another will tell of lubrication service in Indianapolis.

thoroughly lubricated even to the door latches and hinges, but the car was dusted inside, cleaned on the outside with a soft cloth and the rubber mats on the running boards were dressed with a compound to keep them from cracking.

Two men worked on the car under the direction of a supervisor. It took 15 minutes for the two men to do the lubricating and 15 minutes more to clean the car.

The average time at both oil company and car dealer stations was 37 minutes. The longest time taken was one hour on a Lincoln sedan. The work was done by two men under the direction of a supervisor. The windows were cleaned, the interior of the car air cleaned and a loose battery connection tightened. This was at an oil company station and the car was driven in at 9 p. m.

The shortest time was 20 minutes at an oil station. Two men worked on the car and used special guns for different points that required special lubricants. No special services were given. The windows were not cleaned, the latches and hinges were not oiled; the battery and radiator waters were not checked, and the interior was not cleaned. However, this car was spotlessly clean when taken in.

The prices were uniformly $1 a car at oil company stations regardless of make of car. At car dealer stations prices ranged from $1.25 to $2 a car.

Oil company stations, as a rule, made it possible for customers to watch closely the work being done on their cars. At car dealer stations the driver was often asked to wait in an office or waiting room while the car was taken into the shop. It was necessary to request permission in some cases to watch the work being done.

Car dealer station attendants as a whole were more careful to wipe dirt off fittings before shooting in fresh lubricant. Oil station attendants were not so careful to clean the fittings although many of them did so that no grit would be forced into the bearings.

Oil company stations were usually better equipped to do a thorough lubrication job than car dealer stations. One car dealer station had a lift. Another had a rack but the other three serviced the car on the floor.

Eight of the oil company stations had lifts; five had pits, and one a rack.

All the oil company stations used power grease guns but only two of the car dealer stations had power guns. Hand guns were used for the work at the other three car dealer stations.

The Buyer found that attendants in both classes of stations, as a rule, knew little about the greases they were using. A few of them did. Chassis lubricant was used by several stations for points where charts specified water-proof grease. When this was called to their attention they usually said their chassis grease was water-proof so they used it wherever water-proof grease was specified.

Arguments were offered by attendants both for and against fluid and semi-solid lubricants. Some attendants said a fluid lubricant was needed for cold weather and was therefore best. Where semi-solid lubricant was used the attendant would say it resisted water and slush and therefore was better for winter use. Some of the stations were not "the last word" in cleanliness. However, the super-service stations that were visited were well kept and some of them were spotless.

A few of the stations used work tickets on which were printed the various service the station offered. The attendant or supervisor would check all the items the Buyer wanted done on the car and then the attendant would check the ticket as each item was completed. At some stations, however, there was little or no system and the attendant would ask the Buyer what he wanted even after he had told the supervisor the service sought.

Methods of operation varied with each station visited. The Buyer observed that "as a general rule if the customer wants extra service such as having the inside of the car vacuumed, the windows cleaned, the radiator and battery water checked, he is more likely to be satisfied if he patronizes one of the super-service stations of the oil companies."

Quick Facts on Lubrication Service Check

Fourteen Oil Company Stations Visited

Nine lubricated all points on charts.
Five missed one to four points.
Four checked radiator water.
Five checked tire inflation.
Five wiped windows.
Four cleaned inside of car.
Five checked battery water.
Eight oiled hood hinges, door hinges and latches and other minor points.
Five used two kinds of grease; two used three kinds; four used four kinds; and three used five kinds.

Five Automobile Dealer Stations

All lubricated all important points.
One checked radiator water.
One checked tire inflation.
Two wiped windows.
Two cleaned inside of car.
One checked battery water.
Three oiled hood hinges, door hinges and latches and other minor points.
One station used two kinds of grease; one three; one four, and one six kinds. Buyer was not allowed in shop of one dealer.

The Two Gallon Buyer watches an oil station attendant work under a car. Note the cloth over the front fender to catch any oil or grease drippings. Also note the double chock arrangement on the lift to prevent a car from rolling off

From the Buyer's Notes on Several Stations

ABOUT 3 p. m. I drove on the lift of one of the oil company super-service stations. The station was rather full of cars at the time but I did not have to wait for an attendant.

The car I had brought to the station was a 1927 Chevrolet. I looked at the Chek-Chart before I took it to the station and discovered a fitting on the universal that was rather difficult to get to and pretty well hidden.

Naturally I kept my eye on this point to see if the attendant would hit it. He went about his work quickly and seemed to know what he was doing but he missed the universal fitting.

Just as he was letting the lift down I asked him if he had taken care of the fitting on the universal. He stopped the descent of the lift and looked at the universal.

He then asked me if I had trouble with the speedometer, explaining that the fitting was for the speedometer. I replied that I didn't think it was and asked him if he had a Chek-Chart.

When we looked at the chart we found it to be a place for fluid lubrication of the universal. The attendant admitted his error and said that he always thought it to be for the speedometer.

He had worked not six feet from the chart and had not referred to it.

* * *

I SPOTTED a brand new service station operated by a large oil company. The station men were very efficient, in fact they were so efficient that it was laughable.

Two men worked on the car with a superintendent who looked on and checked after them. They were all trying to make a very good impression.

I quietly asked the young superintendent a question about the quality of grease he used in the grease gun. From that time on he scarcely let me alone for a second. He would dash up to me with a handful of grease and explain its use.

He asked me all kinds of questions about the grease I usually used. He would ask me to "step this way." He would then proceed to show me what he termed the double check. Stepping to a fitting that had been greased he would examine it, then call out the name of the fitting in a loud voice. The man who had worked on the fitting, would answer, "Yes sir," if he had filled it.

The system was a very good one but slightly too dramatic.

Everything was taken care of at this station: water, air, windows cleaned, battery

checked and the inside cleaned.

As I drove from the lift the superintendent came to me and earnestly assured me that I could expect this same high type service every time I came to the station.

Another attendent came to the side of the car as I drove from the building and asked, "Shall I fill it up sir?"

While everything was done with efficiency it was the first station encountered where I received so much attention that it was annoying.

* * *

THE best job, it seemed to me, was done at an automobile agency station. I asked the service foreman if I could watch the work. He said it wasn't customary for the car owner to go into the shop but he said he would allow me to go in this time.

The car was driven on a rack and the two mechanics attached lights to the car that they might see better.

The superintendent explained the lubricants, saying that five different types were used.

The work was done in exceptionally fast time. The actual greasing took but 15 minutes. The men's thorough knowledge of the car together with the high pressure guns helped speed the work.

After the car was taken from the grease rack one man went over the entire outside and cleaned the dust from it with a soft cloth. Another man dusted the inside. The superintendent painted the hood pads with a special preparation. The running boards were painted with another preparation composed of gasoline and oil.

One half hour after I had brought the car to the agency it was ready for me, thoroughly greased, clean inside and out, and with windows spotless.

The price was $1.50.

* * *

CURIOSITY led me to a station that I had noticed for some time.

The station is but two or three months old. Many neon signs are posted about, calling attention to the cut-rate price.

The greasing department is equipped with a pit and high pressure guns.

The attendant was a young fellow who did not entirely relish his work. Often he would complain about the unhandiness of the pit and the shortness of the pressure gun hose.

He seemed to have quite a little difficulty getting the grease through one of the shackles. He stuck his head out of the pit and asked me if I would kindly bounce the car. As I did not want to disturb the other attendant who was reading a paper in the office, I obliged by climbing on a bumper and bouncing the car. Thanks to my effort the grease finally came through.

The attendant neglected to ask about or look at the clutch release bearing. He missed two important fittings on the rear axle.

He did not oil the hood or door latches, did not clean the windows or the inside of the car. I was asked if I would like to have the springs sprayed. I looked at the springs and said I didn't know if they needed it or not. The young attendant discouraged me on this point by saying that he didn't think it would do any good as the oil would only pick up dirt.

I left the station still slightly warm from my exertion on the bumper.

* * *

CLEANLINESS was the keynote of this super-service station.

The inside and outside of the building had been freshly painted. The space about the lifts, usually so hard to keep clean was as free from grime as any other part of the station.

While the car was being greased one of the attendants cleaned the windows inside and out, looked at the water, gauged the tires, filled the battery with water and vacuumed the upholstery.

A very attractive board displayed the grease guns and held the correct label beneath each one.

Five different guns were used on the Chevrolet I drove on the lift.

The transmission and differential were checked and the springs sprayed as a part of the regular service.

Ohio Gas and Oil Men's Meeting Draws 500

COLUMBUS, O., March 23.—The convention of the Ohio Gas and Oil Men's Association here March 17 and 18 attracted 500 men. General and sectional meetings were held.

W. T. Holliday, president, Standard Oil Co. of Ohio, spoke on "Legal and Economic Complications Peculiar to the Oil Industry"; E. C. Turner, former attorney general of Ohio, on "Public Relations," and H. E. Sain, Ohio Industrial Commission, on "Safety First."

Sectional meetings were on production, distribution of natural gas, and public relations. J. J. Schmidt, geologist of the East Ohio Gas Co., presided at the production section meeting in the absence of its chairman, John G. Hanks, also of the East Ohio. A paper prepared by J. C. Asken, Ohio Oil Co., on "Results of Efforts to Stimulate Crude Petroleum Production in the Clinton Sand Area of Northwestern Ohio," was read by R. H. Fletcher of that company.

Other production papers were "Why Proration?" by Charles Hammond, Pure Oil Co., Columbus, and "Economic Operation of Small Gas Wells," by I. C. Grim, Sylvania Producing Co., Woodsfield, O.

Officers elected are: L. K. Langdon, Cincinnati, president; Raymond Cross, Columbus, and Warren Burns, Marietta, vice-presidents, and William H. Thompson, Columbus, secretary and treasurer.

Directors elected are: James W. McMahon, Toledo; Joseph Dallow, Lancaster; R. W. Gallagher, Cleveland; K. C. Krick, Columbus; John J. McMahon, Toledo; E. A. Munyan, Cincinnati; T. W. Lupher, Columbus; James Burtner, Wooster; E. R. Curtin, Lima; P. C. Jones, Delaware; John Klise, Wooster, and L. A. Seyffert, Columbus.

The convention was welcomed to Columbus by Gov. George White, one of the association's members.

Commission Order May Bring East Texas Into State's Proration Program

By Paul Wagner

N. P. N. STAFF WRITER

AUSTIN, March 24

MOMENTOUS problems affecting the petroleum industry of Texas held the stage at Austin, March 23 and 24, with prospects that legislative affairs would have further innings as the week proceeded.

Called for the 23d were two hearings before the Railroad Commission of Texas, the state's natural resource conservation agency, on the question of inaugurating proration of production in the Gregg-Rusk district of East Texas and the renewal of earlier orders applying to the rest of the state.

Whatever orders are issued are due later in the week, to become effective when the present state prorating order expires April 1.

The commission faced bitter sessions, with East Texas antiprorationists present in force to urge exclusion of their district from statewide restrictions. Other operators were equally insistent that production curbs be extended to the new district.

Meantime, the Gregg-Rusk district reached a new high level of non-prorated production of 97,794 barrels, March 17.

Proration proponents had the backing of Governor Sterling, who a week ago attacked the railroad commission's "hands off" attitude toward the Gregg-Rusk district. He also has brought about introduction of a bill in both houses of the legislature to create a new Conservation Board of Texas, an appointive board which would act as the state's agency in oil industry regulation, in place of the state railroad commission.

As the commission hearing opened it became apparent sessions probably would last into the 25th. The statewide hearing came the 23rd with the East Texas session in prospect for the next day. It was virtually certain that testimony presented would result in a railroad commission order including the Gregg-Rusk district with other fields in the total state allowable production. but at an uncertain maximum for that field. East Texas has not heretofore been included in the state total, hence this total, after April 1 will probably show an increase above the present 645,000 barrels.

Operators in other parts of the state were prepared to present evidence of physical waste in East Texas through the showing of greatest disproportionate withdrawals from underground reservoirs in the history of the state's proration movement. It was to be shown that certain wells possible of production were shut in entirely with their offsets being flowed at thousands of barrels daily for tank car loadings.

An East Texas lobby of landowners, merchants and others interested more in boom conditions than the welfare of the petrolem industry itself face difficulties in being heard by the railroad commission. Advance announcement was made by Chairman C. V. Terrell that sessions would be conducted in an orderly manner with all testimony under oath and no political haranguing allowed.

The commissioner said the conservation agency is interested only in facts, it has nothing to do with crude oil prices and it "is not going to be stampeded or intimidated by any group or faction."

Proponents of proration were to bring up at the first opportunity a resolution already passed in the Texas senate calling for appointment of a joint legislative committee to advise with the governor and other state officials on oil conservation, and inviting conferences with representatives of other oil producing states.

A house committee has voted favorably on the bill sponsored by the Independent Petroleum (Producers) Association of Texas, which seeks to force all companies engaged in other branches of the industry out of the retail marketing of gasoline in the state.

The bill is being fought both by the Independent Petroleum Marketers Association of Texas and by major companies, who find unfavorable provisions in it with regard to their respective operations.

East Flank of Sabine Uplift Shows Oil

HOUSTON, March 22.—The possibility of opening a new oil field on the east flank of the Sabine uplift, in North Louisiana, was indicated by the coring of Woodbine formation at 4080 feet in a test drilled by W. M. Coates of Shreveport, in the village limits of Marthaville, Natchitoches parish. The test is No. 1 Collins, in sec. 28-9-10. Oil showings are reported in the hole and predictions are being made of completing a commercial well.

Finding of Woodbine oil on the east flank of the Sabine uplift would open a similar wildcatting play in North Louisiana to that now under way on the west flank of the regional structure in East Texas.

Daily Proration Recommendations

By Telegraph

AUSTIN, March 24.—Pending

adjustments in its recommendations which were still under consideration Tuesday noon, the central proration committee of Texas was delaying presentation of figures to the railroad commission at its March 24 hearing in Austin.

Its recommendations for the new prorating period beginning April 1, however will approximate the present 645,000 barrels for the state exclusive of the Gregg-Rusk district in east Texas. What it would recommend for that territory remained uncertain with prospects that a curtailment basis would not be reached until a second day's hearing Wednesday. Meantime the Gregg-Rusk district had set a new high level of production at approximately 101,000 barrels daily of nonprorated oil.

Moody Not to Be Chairman if Texas Creates New Oil Board

HOUSTON, March 19 GOVERNOR STERLING'S administration bill to create a new Conservation Commission of Texas was being studied this week in the legislature.

Former Governor Dan M. Moody has been retained by the East Texas Lease, Royalty and Producers Association, in its anti-proration fight, foreshadowed a probable test in the courts against curtailment proposals and definitely disposed of rumors that Sterling would appoint his friend Moody chairman if the new oil board is created.

Sterling's proposal calls for a board of three members, to be appointed by the governor, drawing $6000 a year each and serving six years, one member's term expiring every two years. Appointments by the governor are to be approved by the senate.

The bill creating the board sets forth that members shall be either petroleum engineers, lawyers with experience in oil practice, or practical oil men with at least five years' experience in the oil and gas business.

As to the duties of the board, the act sets forth that all the "jurisdiction, powers, rights and authority" heretofore imposed upon the railroad commission, under all the laws of the state, "relating to the conservation of oil and gas and the regulation of gas utilities, pipelines and common purchasers of oil" are taken from the state railroad commission and transferred to the new Conservation Commission. All rules and orders of the railroad commission are to continue in effect, with the transference of authority, until modified or set aside by the new commission.

The bill goes on to set forth that the state railroad commission is now greatly overworked in carrying out its duties outside the enforcement of laws relating to the oil and gas industry, and that an emergency is thereby created and that the act is to become effective immediately upon its passage.

East Texas Refinery Begins Operations

TULSA, March 21.—Fires were started March 17 under the still of the first refinery to be put into operation in the new East Texas oil field, when tests were made of the East Texas Refining Co.'s plant at Henderson.

This first refinery, one of two planned by the East Texas company, will be operated at 5000 barrels daily capacity, according to Freeman W. Burford, president of the company. Products will be 58-60, 437 e.p. and 64-66, 375 e.p. gasolines, kerosine, gas oil, distillate and fuel oil. The plant's equipment was said to consist of a pipe still and modern fractionating equipment designed especially for the East Texas crude. The bubble tower is 60 feet high and 8 feet in diameter.

Mr. Burford said March 19 that the plant's output of gas oil and fuel oil had been contracted, as well as a major portion of the gasoline.

The other refinery being built by the company, at Longview, will be ready for operation by April 15, according to present construction schedule. The plant then will handle 5000 barrels daily, and by May 1 10,000 barrels daily.

The East Texas refinery will have the same freight rates as north Texas for movement of refined products to Standard of Indiana and Gulf coast points. The rates for movement north are approximately 0.125 cent above the Oklahoma (Group 3) rates, and approximately 0.10 cent a gallon under Oklahoma (Group 3) rates to Gulf ports for export.

Into the southeastern territory the refinery will have a rate of 2.5 cents per 100 pounds over the El Dorado-Shreveport group of refiners, amounting to approximately 0.165 cent a gallon above that district.

Death Takes Philfuels Assistant Manager

DETROIT, March 18.—Lloyd E. Eldridge, vice-president and assistant general manager of Philfuels Co., subsidiary of Phillips Petroleum Co., died March 14, in Detroit. His untimely end, at 31, came as the result of streptococcic throat infection followed by other complications.

Mr. Eldridge, since his graduation from the University of Illinois in 1922, has become well known in the oil and natural gas industry, his first connection being that of chemist with Chestnut and Smith Corp. in Texas.

In 1923 he entered the employ of the Baltic Gasoline Co. as assistant superintendent. From 1926 to 1928, Mr. Eldridge was associated with the Humble Oil & Refining Co. as a refinery superintendent. On Jan. 15, 1928 he was employed as office manager for Philfuels Co., later being transferred to Detroit, when the company headquarters were transferred to that city. Here he was promoted to the position of vice-president and assistant general manager.

Mr. Eldridge leaves his wife, Mary, and two children, ages five and two.

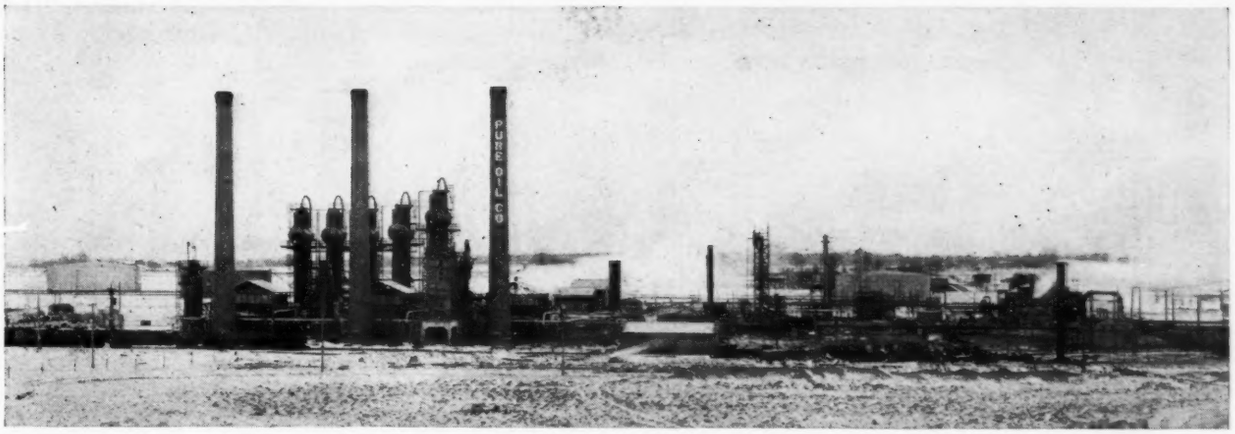


Fig. 1—New Pure Oil Co. plant at Toledo, recently put in to operation. This plant will process crudes from Michigan and The Van Field in Southeast Texas

Pure Builds Toledo Plant to Process Michigan, Van Field Crudes

CLEVELAND

THE erection of a refining plant for processing crudes from Michigan and from the Van field in southeast Texas, the construction being handled entirely by the company's engineering department, has just been completed by the Pure Oil Co. at Toledo. The chief product from this plant will be gasoline which will supply the company's market in the Great Lakes territory.

The plant was constructed under the supervision of company engineers, employing an average of 550 men daily. The entire job, from surveying the site and laying foundations to firing the stills for the initial run, required five months, winter months when outside construction work in this latitude often becomes a difficult proposition. Preparation of plans and specifications, ordering and providing materials on the job were all handled by the Chicago office of the company.

The plant includes topping units, three Gyro units for vapor phase cracking, and the necessary treating exchanger and condenser equipment, 25,000,000 gallons of tankage, 70 miles of piping, and 1½ miles of railroad track. B. W. Winters was construction superintendent of the entire job, with Messrs. Wood, Michener, and Mathy as assistants. O. B. Wendeln is superintendent of the new plant, with C. L. Smith as assistant and E. Gooch as residence chemist.

Details of the construction and operation of the plant have been supplied by R. C. Osterstrom of the company's technical staff as given below, giving a concise outline of the manner in which the problems were handled.

"The plant is located approximately six miles north of Toledo. It covers about 80 acres, which is ample for all the necessary equipment and tankage and still leaves sufficient room for considerable future expansion. The refinery is served by the tracks of the Toledo Terminal Railway and has shipping facilities on the Great Lakes by means of pipelines to docks located on Otter Creek and just south of where Otto Creek flows into Maumee Bay. The ground is fairly high, quite level and has excellent drainage. Soil conditions also are favorable for foundation work.

"In making a connection with the new Ajax pipeline to our Toledo refinery we were able to augment from this line our supply of crude oil from our own Michigan field, so that a plant of economical size and adequate to supply marketing requirements could be operated. The plant is unique also in that with three of the latest type Gyro vapor phase cracking units, compressor and absorption plants and treating equipment the refinery is complete and produces a gasoline of very high anti-knock value.

"Such compact equipment requires a minimum of operating labor, and eliminates the necessity of boiler houses and a great deal of other auxiliary

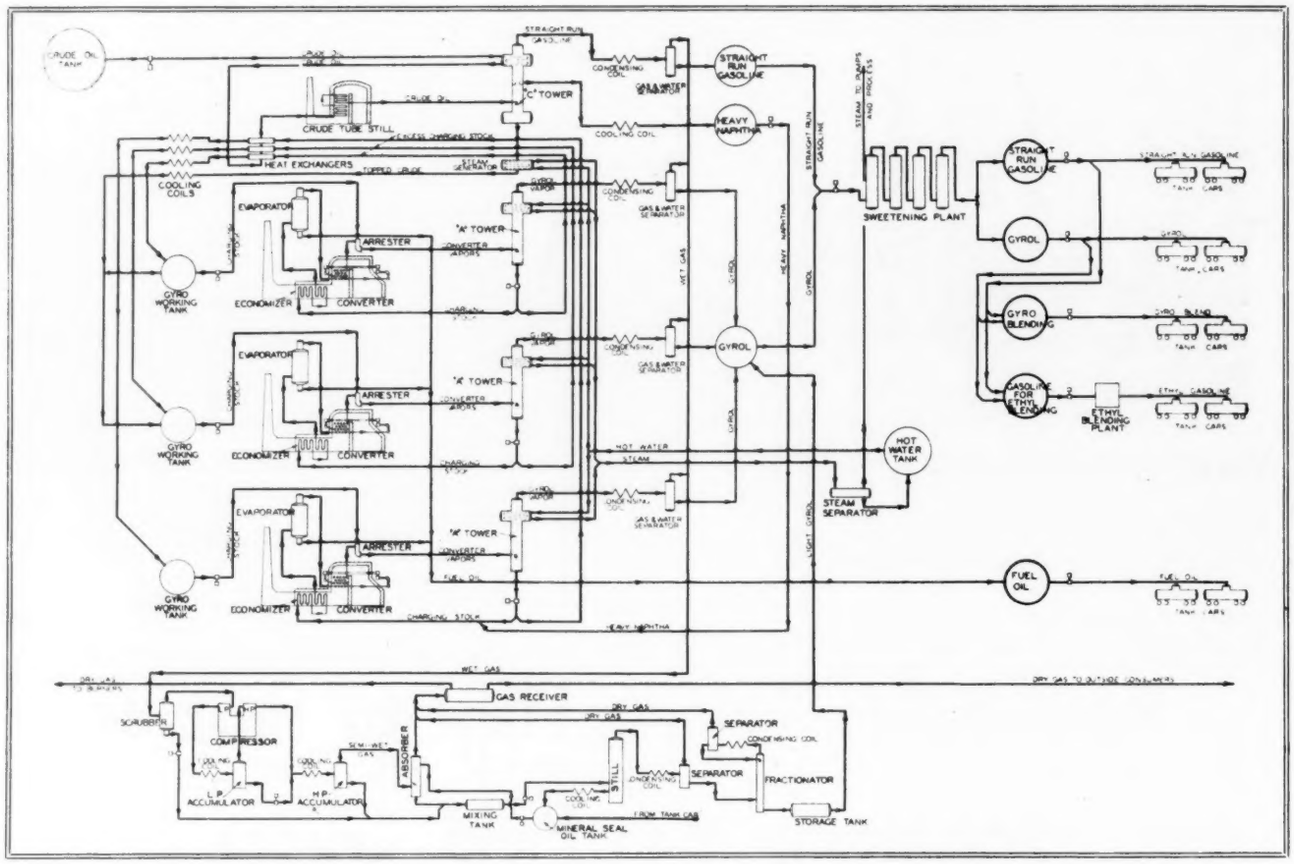


Fig. 2—Flow diagram of Pure Oil Co.'s Toledo plant. Note the provision for heat exchange and recycling in connection with the gyro units

equipment which are ordinarily vital adjuncts to the proper operation of a refinery. This makes possible remarkably low investment costs. With properly designed fractionating towers, great flexibility is obtainable from a plant of this type.

"It has been found that 35 per cent to 40 per cent of the gasoline fraction, that is to say, the light end of Michigan straight run, has a relatively satisfactory anti-knock value. In the distillation of this crude, this amount of straight run gasoline is taken off. The attached flow sheet, (Fig. 2) will give an idea of the operation. The Michigan crude is pumped from storage tanks to the refluxers in the top of fractionating tower "C," then through the exchangers to a small tube still where final heating is obtained by complete vaporization.

"The mixture of vapors and liquids leaving the tube still is delivered into fractionating tower "C," where the gasoline content is split and taken off in two streams. The light fraction leaves the top of the tower and goes through condenser coils, gas and water separators, and into run-down tanks, from which it is delivered to continuous treaters and finally into storage and blending tanks.

"The second fraction, which is the heavy fraction is taken off below the light stream, through condenser coils, etc., to run-down and storage tanks. This second fraction is further processed.

The remaining part of the crude is picked up by hot oil pumps from the bottom of the fractionating tower into the working tanks and deliveries made from these working tanks to the arresters. It is understood that the vapors are being

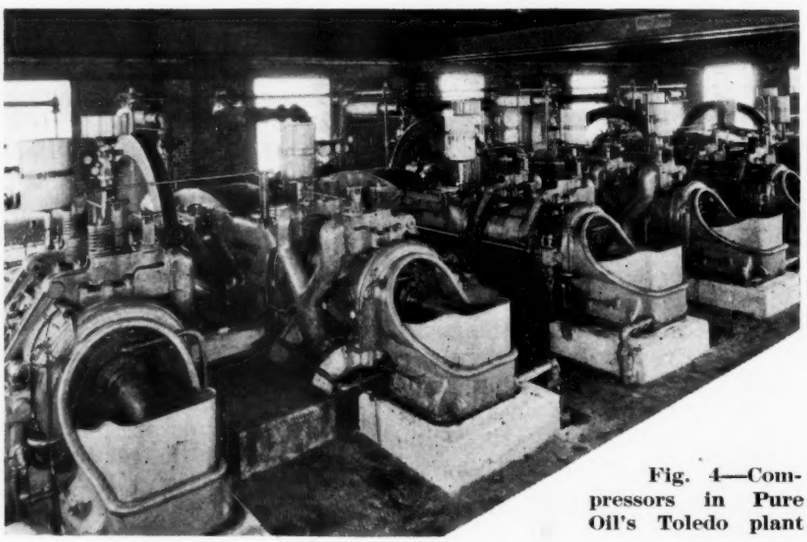


Fig. 4—Compressors in Pure Oil's Toledo plant

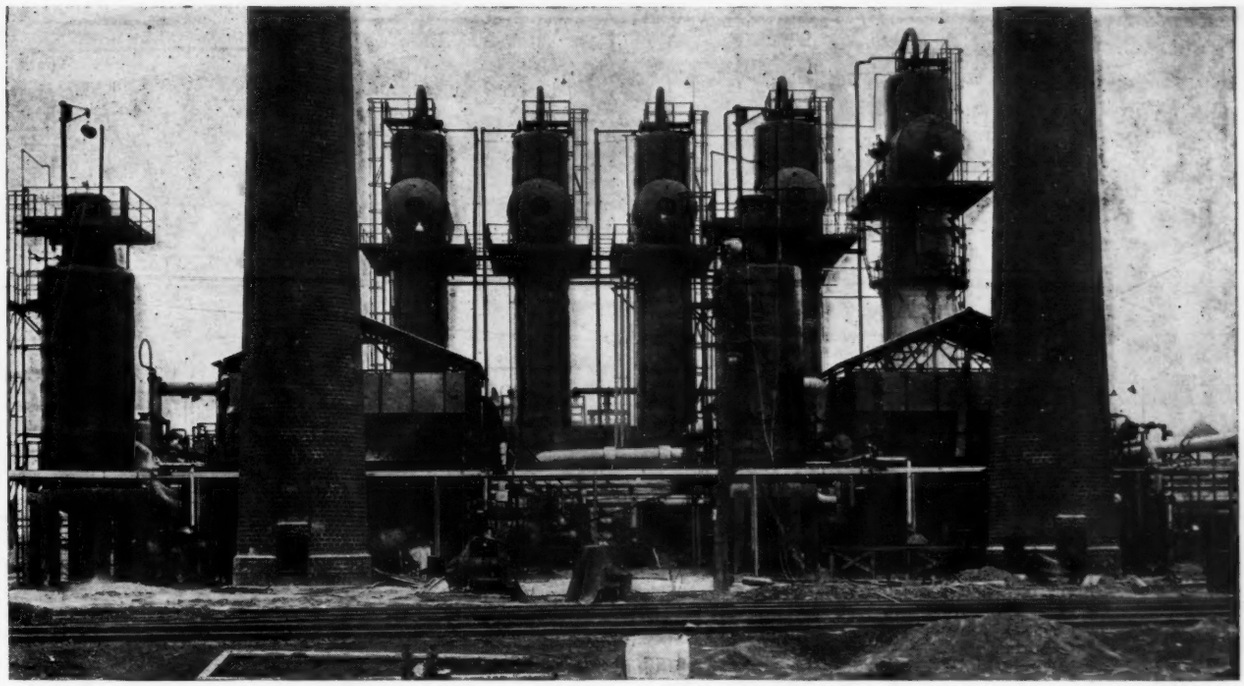


Fig. 5—Distillation battery at the Toledo refinery

delivered from the converter section into these arresters at the same time that the charging stock is pumped to the arresters.

"The mixture of vapors and liquids passes from the arrester to "A" tower, where the cracked distillate is taken off, flowing through condenser coils, etc., to run-down tanks. Part of the liquid in the bottom of the tower is also pumped to the economizers, as shown in the flow sheet, and after passing through this section of the unit it is delivered to evaporators, where the fuel oil content is dropped out—the vapors passing overhead to the converters for cracking. The heat in the hot fuel oil is utilized by means of heat exchangers to heat incoming crude oil.

Mid-Continent crude is delivered from the working tanks in the manner described above, but the gasoline is taken off in one stream since it is unnecessary to rectify any portion of it for anti-knock value. This gasoline is delivered to continuous sweeteners, having first passed through the condensing coils, etc., in the manner also described above. When desired, a kerosine fraction can be taken off from the "C" tower.

"With three units, and operating on Michigan crude, two of the converter sections are utilized for cracking the gas oil content of the crude, while the third is used for rectification of the heavy gasoline fraction from this crude. In the rectification step, this heavy gasoline fraction is charged through heat exchangers to the economizers, thence through the converter section, and remarkable volume recoveries are obtained.

"In excess of 60 per cent of gasoline is normally obtained in this operation—the gasoline having anti-knock value of Ethyl standard. There is quite a demand for Ethylized gasoline in this territory and for this reason the plant has been equipped with an Ethyl blending plant.

"The oil pump house is 123 feet long by 26 feet wide and contains 12 electric driven pumps which handle all transfer work, unloading of incoming crude and loading of outgoing products. These pumps are motor driven centrifugals with the exception of the fuel oil pump which is of the triplex type.

"The floor of the pump house is four and one half feet below grade line, thus giving a positive suction head to all pumps and lending greater efficiency to all pumping operations. Adequate loading rack facilities are also provided, as are dock facilities for loading and unloading steamships and barges."

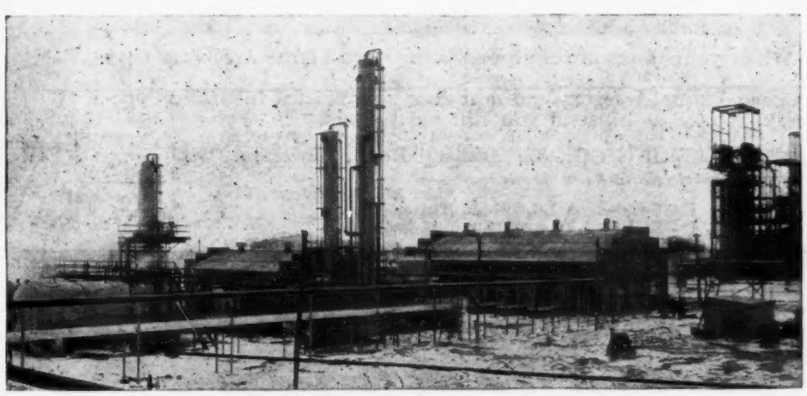


Fig. 3—Vapor recovery unit at the Toledo refinery

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Oil States to Propose Relief Program At Washington Conference

By A. E. Heiss

N. P. N. WASHINGTON REPRESENTATIVE

WASHINGTON, March 23

EARLY in April, the Federal Oil Conservation Board will hear the proposals of the Oil States Advisory Committee, headed by Cicero I. Murray, Oklahoma's representative, for the stabilization of the oil industry.

Hovering over that meeting will be the specter of prosecution under the Sherman anti-trust law, raised by Senator Borah, of Idaho, chief—intellectually at least— of the so-called progressive element in the United Senate, which holds the balance of power in that body.

Borah expressed the opinion, just about the time arrangements were made for the hearing, that to place a limitation on imports of petroleum would be a violation of the anti-trust law. True it is that Borah limited his expression to imports. But the anti-trust law deals equally with restraints of trade among the states and with foreign countries.

The fact that Borah announced such a conviction has a meaning out of all proportion to the numerical strength of the so-called progressive element in the Senate. In this instance Borah's conviction means that the Senate thinks limitation on imports would be a violation of the anti-trust law. Disregard of the Senate's view by an executive branch of the government, such as the Department of Justice means troubles about appropriations for the Attorney General's office.

The day Borah expressed his conviction the senator had lunch at the White House. Although the Idaho senator has been President Hoover's most severe critic in several matters, they maintain friendly personal relations. As he was leaving the White House he said he believed there would be but little if any limitation on imports, but would not enlarge on that statement.

At the same time Secretary of the Interior Wilbur was expressing the hope he would be able to say something definite about the efforts of Secretary of Commerce Lamont to bring the Standard Oil Co. of Indiana into line with a few other big companies in cutting down imports of Venezuelan gasoline and crude oil. But he also said that, in his absence on the trip with President Hoover to Porto Rico and the Virgin Islands, no one would have authority to make announcements as to the progress of the negotiations. That meant a static condition until March 28, the President's trip being planned to last ten days.

BORAH'S opinion was taken as likely to have a favorable effect upon the Wilbur plan of having production limited in this country by compacts among the oil producing states. Secretary Wilbur put forward that idea two years ago when Attorney General Mitchell ruled against the American Petroleum Institute program to restrict production in this country by holding the 1929 crude output to the 1928 level. It was pointed out that, if approval by the Federal Oil Conservation Board of the A. P. I. plan meant giving an immunity bath to the oil companies any plan of the Murray committee calling for approval of the oil board would be subject to the same point thereby the Murray committee would be driven back to consideration of plans made by the states to which the anti-trust laws could not be as readily applied as to individuals, if at all.

That Wilbur, the moving force in the Federal Oil Conservation Board, has serious plans for the hearing or conference with the Murray committee, is to be inferred from the fact he asked that committee to postpone its meeting from March 30 to April 9. On the latter date the report of the Voluntary Committee On Petroleum Economics, on petroleum requirements for the next six months, would be ready. Secretary Wilbur wants the conference or hearing to consider such measures as it might suggest, in the light of the estimated requirements of the economists.

A better idea was had in Washington of the plans and ambitions of the Oil States Advisory Committee after receipt there of the 20 recommendations it adopted after the conference at Texarkana early in March.

The first recommendation set forth was to the effect that the committee of representatives of oil states be continued to correlate the activities of the various conservation bodies of the oil producing states in an advisory capacity, and to make recommendations as to the amount of oil that should be produced in this country for specific periods and the prices that should obtain.

THE committee also recommended it be empowered to confer with major importers of crude and petroleum products and with companies holding crude in storage as to proper withdrawal schedules and with governmental agencies in an effort to secure a fair price for producers in this country for their product.

It also recommended that the oil producing states enter into an interstate compact, subject to consent of Congress. This is the same idea of a regula-

tory program advanced by Secretary of the Interior Wilbur at the conference of representatives of oil states held in Colorado Springs two years ago.

Signing the 20 recommendations of the advisory committee were Robert R. Penn, vice president for the American Petroleum Institute's production division and chairman of the Central Prorating Committee of Texas, representing Gov. Sterling; Mark Mitchell of Independence, representing Gov. Woodring, of Kansas; Cicero L. Murray, conference chairman, representing Gov. Murray of Oklahoma; W. Scott Heywood of Jennings, representing Gov. Long of Louisiana; Carl N. Cox, of Cheyenne, William H. Cooley, of Bakersfield, and President T. H. Barton of Lion Oil & Refining Co., representing governors of Wyoming, California and Arkansas, respectively.

IT IS believed that Secretary Wilbur hopes the Murray committee will present something upon which there can be immediate action in addition to what it might suggest on a long view of the whole situation. Wilbur was caustically criticised in the governors' conference of independent producers, held in Washington in January, because he suggested a long view of oil production as a problem in conservation, rather than as a matter for immediate action only.

Senator Capper of Kansas, who was also a caller at the White House while the announcements of the Murray committee of Senator Borah and Wilbur's statement about the progress of negotiations for limiting imports kept oil to the fore in the public eye, said that, even if imports were limited, a tariff was needed to keep down the volume of the foreign oil. Limiting imports by action of the importers, he said, was not enough. His thought was that the independent producers needed protection based not on the grace of the importers, but upon law.

How sensitive Attorney General Mitchell is about questions concerning the legality of trade associations is to be inferred, it is believed, from the fact that two days after Senator Borah had expressed his conviction on restriction of petroleum imports, Mitchell told newspaper men he was considering the institution of anti-trust proceedings against the Sugar Institute. This organization gathers and disseminates statistical data about sugar. He said his assistants had placed the question before him in the form of facts gathered by them raising the quesion as to whether that association had violated the anti-trust laws. Answering questions, Mitchell said he had taken note of the opinion made by Senator Borah that "the administration's plant for oil proration" would be in violation of the anti-trust laws. President Hoover, the Attorney General said, had not asked for an opinion on the question whether plans for proration of domestic production and limitation of imports would be considered a violation of the anti-trust laws. The Attorney General talked as if plans for proration were plans of the Hoover administration.

Among senators there is no distinction between restraints of trade made or undertaken to prevent economic disaster and restraints undertaken with a view to pushing prices beyond reason; that is there is no distinction, by senators, between protective and aggressive agreements for limiting production. The courts have made a distinction by saying that, in passing upon the question whether the anti-trust law was being violated, the facts had to be considered in the light of the rule of reason.

IT IS probable that the report of the Voluntary Committee on Petroleum Economics, to be ready in April, will be more in detail as to petroleum requirements for the coming six months than the previous report, which took up requirements from Oct. 1 last to April 1.

This committee has been called to meet in Washington April 1 and to remain in session until the report is completed.

The committee was appointed by Secretary Wilbur, at the request of the American Petroleum Institute. E. B. Swanson, chief economist of the U. S. Bureau of Mines, is chairman. Other members are John W. Frey, Bureau of Foreign and Domestic Commerce; Martin Van Couvering, petroleum engineer of Los Angeles; Alfred G. White, National Industrial Conference Board; Howard Bennette, Western Petroleum Refiners Association. The personnel of the committee is not the same as that which made the previous report.

The institute wants the report for consideration at the meeting of its refining division in St. Louis April 15 and 16.

The prior report of the committee indicated what production should be expected from each of the major producing areas. It indicated what stocks of gasoline and other refined products should be from the principal refining districts.

It did not, however, indicate the probable production of these various products from the principal refining districts. The forthcoming report may indicate, in a general way, the fair proportion of total output to come from each district.

FIGURES covering exports will probably also be incorporated in the coming report, together with data indicating the origin area of the exports.

Data in hand indicates that, in making its estimate of the probable requirements of petroleum for the coming six months, the committee will have something of a task. No one figure can be used as showing the probable trend of gasoline consumption throughout the country. Consumption has not increased or decreased at the same rate over the country, or evenly for periods.

The committee, it is believed, will undertake to interpret the figures it has gathered so that they will be of value to the industry in its effort to guide its steps in the six months following the date of the report to avoid surplus of production and ensuing industrial instability.

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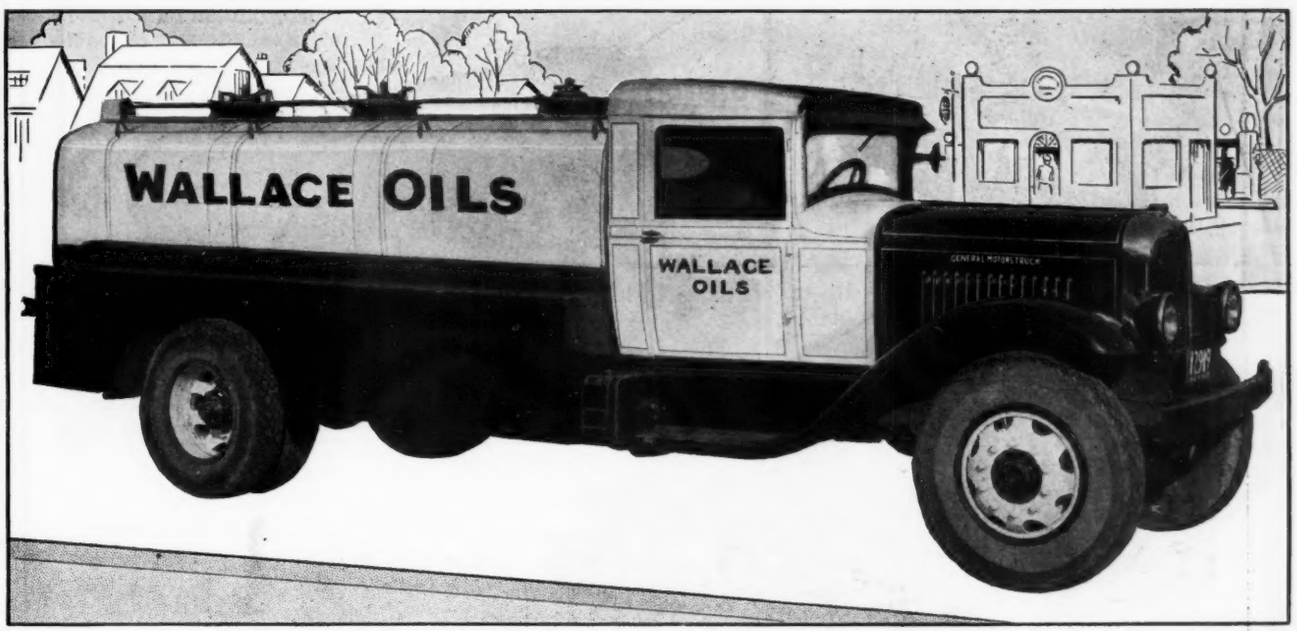

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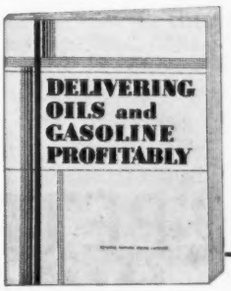

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Wildcat Area is Now Federal Reserve

TULSA, March 21. — Cheyenne Bottoms, that large expanse of swamp in eastern Barton county, Kans., will attract the wildcatter no more. There has been considerable wildcatting in it over the course of the past 10 years and several dry holes have been drilled.

It has been taken over by the federal government as a game preserve and lessees and royalty owners will be reimbursed on the basis of the price they paid. Total acreage involved in the new preserve is 19,880 acres. The southern edge of the Bottoms is a few miles northeast of Great Bend.

Lone Gas Well Turned To Commercial Use

TULSA, March 21.—Sinclair Oil & Gas Co.'s gas well in Harper county, Okla., is now supplying fuel to the towns of Laverne and Buffalo. The State Fuel Supply Co. buys the gas at the well and distributes it to these small towns.

The well, No. 1 Howell, far from other production, in the center of the SW SW of 14-26N-24W, was drilled to the greatest depth of any well in the state, 8587 feet. It was plugged back to test a sand at 5385-5420 feet and made 18 to 20 million feet of gas and about 100 barrels of very high gravity oil. It produces about 15 barrels daily of the light fluid which is shipped to Oklahoma City.

House Committee Says Proration is Fair

TULSA, March 21.—The prorationists had all the better of it when the Oklahoma house of representatives oil and gas committee made its report, March 17. This committee was appointed at the beginning of the session in January, resolved itself into several sub-committees and held extended hearings on the character and administration of the law, as well as upon the merits of the Cham Jones bill to repeal proration laws.

The latter bill was allowed to die in committee.

Rep. David M. Logan, chairman of the house committee, said that sub-committees had run down the rumors that the proration law was being administered unfairly and that discrimination was being practiced in enforcement. The committee found that the rumors were unfounded and were "spread for the purpose of undermining public confidence in the administration of laws." No evidence of corruption or wilful wrongdoing on the part of the enforcement agencies was found, the report said.

An investigation was made of proration enforcement in other states and it was found that Texas, California and New Mexico are prorating their flush fields.

The committee recommended that the situation in Oklahoma be left undisturbed pending the outcome of efforts of the Oil States Advisory Committee to reach conclusions as to uniform policy among states.

New Kansas Proration Law Not Effective for Some Time

TULSA, March 21

ORGANIZATION by the Public Service Commission of Kansas of the department necessary to administer the new conservation law has not been effected and it is expected that several weeks will pass before rules are drafted and the personnel named. The law becomes effective upon publication in the statute books of the state, which is expected to occur some time in May.

The law, which has aroused considerable discussion as to its probable effect, is much more than a statute against waste, as some of its opponents have asserted. It does not include the term "economic waste," as does the Oklahoma law, but does carry a prohibition against "waste of gas energy," pronounced by many as the strongest part of the law and a distinct departure from legislation of the kind in other states.

The law also provides for proration and authorized the public service body to "so regulate the taking of crude oil or petroleum from any one common source of supply within the state of Kansas as to prevent the inequitable or unfair taking from such common source of supply of such crude oil or petroleum by any person, firm or corporation and to prevent unreasonable discrimination therein: Provided, That the power granted in this section shall not apply to wells from which the average daily production of crude oil or petroleum is less than 15 barrels per day."

Under the new law the state may apply for receiver for the property on which violation of the law occurs. The commission is authorized to assess the costs of any hearing or application against the parties involved also "all costs to the state of Kansas incurred in making necessary investigations and in enforcing its orders under this act and divide such costs among the parties in such proportion as is just and equitable."

Scouts Defer Meeting To Later Time

TULSA, March 21.—Mid-Continent Scouts and Land Men's Association will not hold the customary annual meeting this Spring, it is announced by George A. Schwab, chairman of the board, after a meeting of the directors. The annual papers and reviews of district activity will be prepared and published, as well as a handbook for scouts.

Later this year, probably in the Fall, the annual field trip to the Arbuckle Mountains will be taken. Present officers and directors of the association will remain in office until the convention is held, which possibly will be late in 1931 or during the International Petroleum Exposition in May, 1932.

Oklahoma Proration is Continued For Indefinite Period

TULSA, March 21

HEARING set for March 25 on continuance of proration for the second quarter of 1931 was postponed indefinitely and the present order continued in force by journal entry of the Oklahoma corporation commission, March 17.

The action was taken the commission said, at the request of Cicero I. Murray, representative of Governor Murray on the Oil States Advisory Committee, brought into being in Fort Worth a month ago. The commission said that orders heretofore made will be continued in force until after the Washington conference, April 9, of the oil states committee.

The commission further ordered that after April 1 no well in the Oklahoma City field shall produce any oil until a continuous four-hour test is made for the purpose of ascertaining potential on which to base its allowable flow, except that produced in the course of taking such test. The Oklahoma City field continues to be held to 6.25 per cent of flow on a basis of two million barrels potential, or 125,000 barrels per day.

Actual production, however, exceeds that figure, as a number of wells classed as underproduced make up their allotment. The pipeline companies have stepped up their takings greatly, much of the increase being on the part of the Sinclair Refining Co.

This company late in February posted a price of 67 cents per barrel in Oklahoma City and offered to take 50,000 barrels daily, ratably. That amount was not forthcoming until after the general price reduction of March 5, which brought the average price in the field to below 67 cents.

Producers who had held off selling at the Sinclair price then began to request connections and during the week ended March 19 Sinclair took an average of 51,891 barrels daily from the field. It had a high run one day of 61,000 barrels. Besides its own properties, it is connected to 55 wells.

The oil moves from the field through the new 12-inch line of the Sinclair-Texas Pipe Line Co. to a point near Coffeyville, Kans., where some 9000 barrels daily are required. The rest is shipped common carrier through the Prairie Pipe Line Co. to East Chicago, where Sinclair has a 35,000-barrel refinery.

Daily average runs from the Oklahoma City field for the week ended March 19 for all companies were as follows:

Company	Runs
Champlin Ref. Co.	2,021
Empire P. L.	22,683
Magnolia P. L.	3,021
Oklahoma P. L.	17,255
Prairie P. L.	1,773
Shell P. L.	4,152
Stanolind P. L.	41,414
Tidal P. L.	1,645
Operators Oil Co.	4,802
Sinclair-Texas P. L.	51,891
	152,040
By tank car	1,380
	153,420

Production and movement of oil from the field are held in close balance. For the week ended March 20, average production was 152,170 barrels daily. An average of 100 wells yielded the oil.

The other big prorated area of Oklahoma, the Seminole district, was still engaged at the end of the week with the 10-day open flow test of wells to ascertain the degree of proration that has been practiced. Thus far, the performance is exceeding all expectations. No sustained test had been given the fields since May, 1930, and proration had been based upon the decline curve. Potential figures were declined 3 per cent each month to make up the potential for the ensuing month.

The older pools of the Seminole district, where production is prorated uniformly 50 per cent, were divided into two groups for the purpose of the 10-day tests in each pool. The following table shows the performance of the first group tested, the period being March 5-15, together with the potential on each that had been set up by the umpire as of March 1:

Pool	Avg. Prod. 10 days	Umpire's Estimate of Potential
Allen	21,928	20,868
Earlsboro, old	34,953	33,121
Maud	4,529	4,729
Searight	8,057	9,825
Seminole	26,890	24,122
East Seminole	2,869	3,427
St. Louis	39,067	33,840
	138,293	129,932

In the main, the umpire's estimate was lower than the pools' actual performance; thus, proration is indicated to have been more than 50 per cent. The group on which the 10-day test will end March 25, including Little River, East Little River, Carr City, Mission, Bowlegs, East Earlsboro and Sasakwa, are running true to the form displayed by the others.

Alberta to Stop Waste Of Natural Gas

TORONTO, March 23.—Immediate steps to prevent waste of natural gas in Alberta are planned by Premier Brownlee of Alberta, as the result of a recent conference on the subject at Edmonton.

An extensive investigation of the subject by qualified experts will be made in the near future, for obtaining data on which the conservation program may be based. It is estimated that, in the Turner Valley of Alberta alone, between 400,000,000 and 500,000,000 cubic feet of gas per day is now being wasted to the air, and it is this type of waste which the premier seeks to prevent.

While he is not yet in a position to outline the steps that will be taken by his government, the premier stated that any steps that may be taken would safeguard the interests of those who have investments in the industry, as far as possible.

CLEVELAND, March 23.—The third International Drilling Congress which was to have been held in Berlin this year has been postponed until September, 1933. Current economic conditions dictated the change.

An Open Letter

Mr. J. Frank Drake, President,
Gulf Oil Corpn.,
Pittsburgh, Pa.

Dear Mr. Drake:

I have just been reading in the papers that you have left the position of chairman of the Pullman Co. to enter the oil business and on behalf of our great industry I hasten to welcome you into the fold. I believe you were once before with the Gulf and I assume that whatever little difficulties that caused you to leave before have now been ironed out.

It has occurred to me that you may have left the Pullman people because you were tired of the everlasting rows that come up in the business of getting all those cars around the country and that you decided to choose an occupation that would be more restful. I can see your point of view, if that was it.

There must be lots of trouble in handling Pullman cars. The porters alone are enough to give a man the galloping jitters. If it isn't one thing it is another. They either tuck the sheets in so tight at the foot of the berth that the passenger has to tear up the whole bed before he can get in or they get the shoes so mixed up that nobody can call his sole his own and you needn't laugh at that one if you don't like it.

Then there is the problem of making sure that a car that is to be set out early in the morning is spotted in such position that the passengers will be aroused by the cheery greetings the yard hands are always hurling at their friends three blocks away. It requires genius of no mean order to make certain that no car full of tired people shall be put in a quiet spot.

Then that later problem of yours has been enough to make anybody resign. Where you formerly were concerned with getting as many people into as little space as possible, you have had to reverse it and put as few into as much space as you could get them to buy. It has been no mean task to get those lordly conductors to become salesmen and try to get each passenger to buy an upper berth that he didn't need.

But, if you think you had a hard job, just wait! This oil business, Mr. Drake, isn't what it was when you were connected with it before. In the old days the executives of a company had something to say about how it should be run.

Now if a company hasn't at least one man who is a colonel on the governor's staff that concern is just out of luck. And the legal department in any up-to-date oil company has a greater personnel than the operating department.

Why right here in Tulsa, your own Gypsy Oil Co. has one vice-president who does nothing but attend proration meetings and corporation commission hearings. He begins early in the morning and keeps going all day. He hasn't been in his office in months and the last time he tried to get in he was rebuked by the hall girl for not sending in his card to himself.

You see, Mr. Drake, this industry generally moves upstream. When the price of oil is cut, everybody starts drilling every location in sight. After the production is assured and we know how much is to be expected from any pool, the state steps in and establishes proration, which then causes the price to go down some more. This is sometimes known as the law of supply and demand. You will have to accustom yourself to living under such conditions.

In your work with the Pullman company you doubtless found times when there weren't enough passengers to fill three cars on a train in which case you sent out only two cars. Now that is quite old-fashioned and we don't do things that way.

When a new field is found we don't bother with such trivial considerations as whether the wells will pay but go ahead and drill them and find out afterward. That is known as the competitive system.

The oil man is never so happy as to find a spot where he can put a hundred thousand dollars into a well and find that he can, by waiting long enough, get his money back. He will not have made anything, but think of the fun he has had.

You will also find that various movements will be started from time to time to develop oil fields as they are needed, produce wells so the gas can be utilized, etc. All such innovations are merely inventions of the Standard and must be kicked in the face wherever found. The glorious spirit of American freedom must be preserved at all costs.

If I were in your place I shouldn't spend any time in trying to do things as they once were done. Make certain that the Gulf has a big legal department with a liberal sprinkling of lawyers who once held state jobs; get some appointments on the staffs of governors of oil states and join heartily in all investigations the political forces may start. Don't pay much attention to those quaint things known as "economic considerations"—you will merely be branded as

a reactionary. The main thing is to make lots of noise and the rest is easy.

Hoping you will enjoy your new situation, I am,

Sincerely yours,

Ellick Botts, Consulting Pumper,

Gray Horse, Okla.

P. S. In case you happen to be cleaning up any last details of your Pullman job, you might tell somebody that Car X153, named, I believe, Hymenoptera, has been out of soap for the past 30 days.

E. B.

* * *

Herman Stabler, chief of the conservation branch of the U. S. Geological Survey, has been making a tour of the Mid-Continent fields in connection with his periodical trip of inspection. He was escorted by John M. Alden, supervisor of the Muskogee offices, which have jurisdiction over the public lands in the Mid-Continent, Texas and Louisiana.

* * *

There isn't any doubt that Oklahoma is getting plenty of advertising, nationally, from the activities of Gov. "Alfalfa Bill" Murray. Folks outside the state are beginning to send him presents. The much publicized fact that he carries his lunch to the office has brought him a cardboard lunch box from an admirer in Ohio.

Nor does there seem to be doubt that the governor is taking this presidential talk seriously. He was introduced to a Kansas audience the other night by William Allen White as a man who "is in the shadow of the White House."

As a footnote on the governor, this department wishes to confess itself in error. We predicted some time back that ere he had been in office three months he would have a rousing quarrel on and that it probably would be with a janitor.

That prophecy missed fire. The quarrel is with the capitol barber. He nicked the governor's chin and the state board of affairs notified the barber that he was to move. A senator came to the rescue and introduced a resolution ordering the board of affairs to lay off. The debate is still on, as this is written.

H. T. (Ted) Galey, of the Gypsy Oil Co., stepped out recently and won for himself a cup about three feet high and a fine watch as the best balkline billiard player to appear in the Southwestern tournament, held at Wichita, Kans. Mr. Galey is easily the best at balkline in Oklahoma (we have a modest sum that says so) and always makes a fine showing in any regional tournament or conference. He probably will play in the national amateur this year.

* * *

A recent innovation in handling telephone calls is that of the Tide Water and Tidal companies in Tulsa. When one dials the company's number a pleasant voice acknowledges the call in this manner: "Tidewater, Good Morning (or Afternoon)." Just a little extra touch that, somehow, seems quite gratifying to the one who calls.

* * *

We should like for all publications, including this one, to stop referring to Cicero I. Murray as a brother of Gov. "Alfalfa Bill" Murray, of Oklahoma. The Murray with the Roman name, who is busy with this Oil States Committee business, is a second cousin to the governor. He is a lawyer, educated by himself and the governor, and aside from having to labor under the name Cicero is a pretty good fellow with considerable common sense and no little shrewdness.

* * *

Messrs. and Mesdames Lloyd Lesh and A. C. Carpenter are vacationing in Cuba. Mr. Lesh is vice president in charge of sales of the Kanotex Refining Co., Arkansas City, Kans., and Mr. Carpenter, his brother-in-law, is head of the Lesh Oil Co., Ottawa, Kans.

* * *

John Power, for the past three years a staff writer for NATIONAL PETROLEUM NEWS, is now with the Chemical Products Co., Wichita, Kans., manufacturers of Resistal (anti-corrosion compound).

* * *

M. B. Turner has been made manager of sales for the Skelgas division of the Skelly Oil Co., succeeding Ford Bacon, who has been transferred to the wholesale sales department of the Skelly company. Charles A. Hopkins has been made assistant to Mr. Turner.

* * *

A. R. Ogsten, manager of the technical department, Cities Service Oil Co., Ltd., London, is in the Mid-Continent in the course of a four months tour of oil fields and refineries of the United States, which he describes as "educational" to himself. He will spend two or three weeks in the Mid-Continent.

* * *

This may not be very amusing, but the fact is the firm of Stretch & Strain sells Nash cars in Wichita.

* * *

L. R. Hodell, of the Carter Oil Co., has been elected president of the Kansas-Oklahoma chapter of the Petroleum Safety Council; R. J. Lauder, Shell Petroleum Corp., vice-president and G. O. Lockwood, Empire Companies, secretary-treasurer. For the Gulf Coast chapter, J. L. Risinger of the Magnolia Petroleum Co. is president; H. S. Stapleton, Vacuum Oil Co., vice-president and P. E. Keegan, Shell Petroleum Corp., secretary-treasurer. The latter was re-elected.

* * *

E. C. Dilgarde, of Casper, is now Rocky Mountain district representative of the Doheny-Stone Drill Co. He formerly represented the Franklin Valveless Engine Co. in the same territory, but for several years has been manager of the Casper airport.

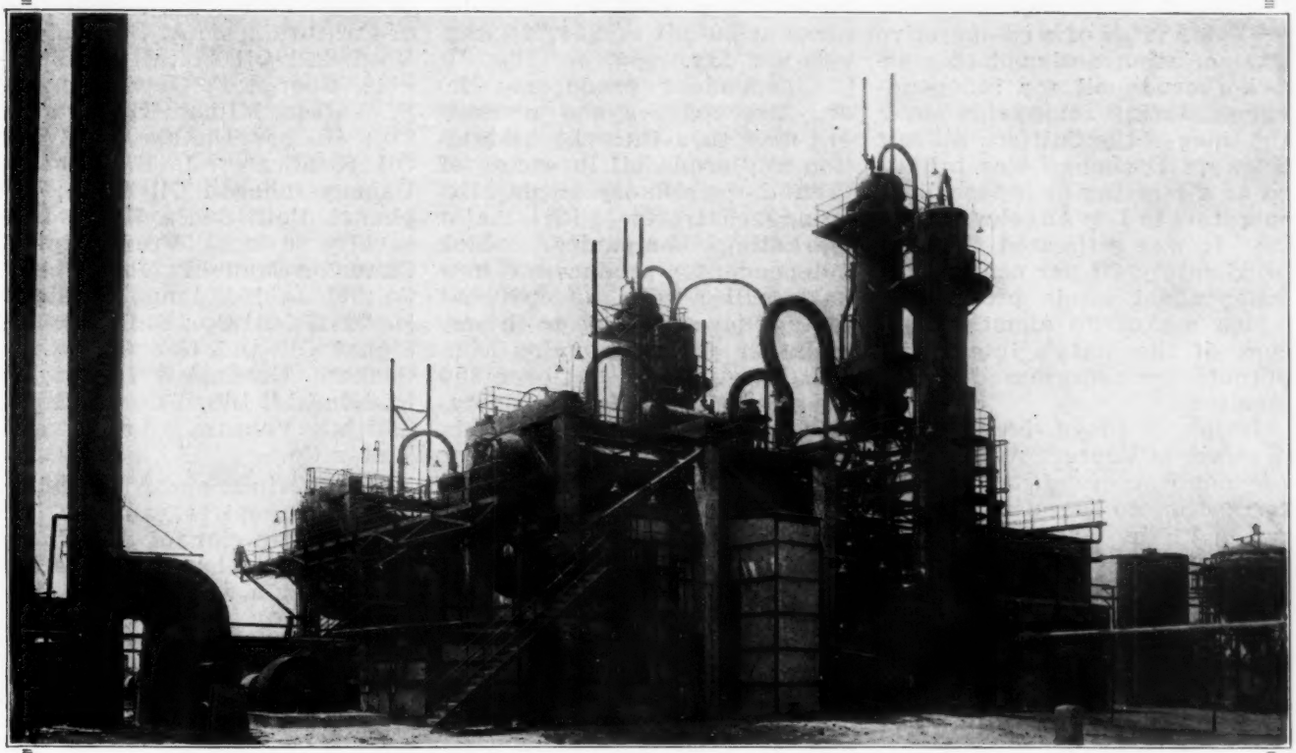
* * *

Former Tulsans now in Dallas with the Lone Star Gasoline Corp. include A. F. Garrett, salesmanager; Paul Bagley, his assistant and W. A. Rowsey, who is in the traffic department. All formerly were with the Chestnut & Smith Corp., whose Texas properties were purchased by Lone Star.

* * *

Well, we can't blame him much, the oil business being what it is, but we regret that Mr. Teagle is entering other fields. He has been made a director of the Coca Cola Co. and any day now we expect to see Mr. Mellon's picture in the paper as a satisfied eater of yeast.

JENKINS CRACKING PROCESS



Two Jenkins Units at the Rio Grande Oil Co., Vinvale, Calif.

Today demands - - -

"- - - Low Manufacturing Costs of Cracking - - - "

You are assured of this with - - - -

JENKINS CRACKING PROCESS

JENKINS ENGINEERING COMPANY
844 RUSH STREET, CHICAGO

Co-Operative Association Formed By California Producers

LOS ANGELES, March 20

FORMATION of a co-operative association designed to market crude oil for independent producing companies along the lines of the California Fruit Growers Exchange was initiated at a meeting of independent operators in Los Angeles, March 20. It was estimated that approximately 70 per cent of the independent crude production, which makes up about 46 per cent of the state's total daily output, was represented at the meeting.

Ralph B. Lloyd, large royalty owner at Ventura Avenue and for many years director of a farm crop co-operative organization in the state, called representatives of the larger independents together. With the help of Judge William Hazlett, who was presiding judge in the Santa Fe Springs gas case, articles of incorporation have been prepared and will go to Sacramento at once.

As outlined at the meeting the plan is designed to procure a market members' oil at a fair price. It is to advise members as to the available market and the volume of each commodity it can sell. It will co-operate with its members in keeping available supplies of crude and refined products within reasonable distance of sales outlets.

To provide capital for financing the actual cost of this work the association will assess members a certain amount on each barrel sold. The schedule of rates is to be worked out by a board of 21 directors and the total amount to be only enough to meet actual current expenses.

By working in conjunction with proration umpires, the association hopes to bring about a more concerted action in prorating the flow of producing wells and thereby obtain more satisfactory prices for crude oil under the curtailed output.

It was pointed out at the meeting that the seven major companies are now producing 267,513 barrels of crude per day as compared to an independent output of 231,725 barrels per day.

Independent producers who are also refiners and marketers may turn into the association any crude oil in excess of their daily refinery needs. Existing contracts with major marketing companies, which independent producers now have will not be affected but their renewal will go to the association for approval.

It is estimated that over 250 independent California operators would be likely to join such a movement and that there was a possibility to raising this number above 350.

William C. McDuffie, receiver in equity for Richfield Oil Co. and sponsor for the consignment plan for purchasing crude was at the meeting as a representative of Pacific Western Oil Co.

Other leaders among the independents present included: A. T. Jergins, Jergins Syndicate and president of the Independent Petroleum Association of California, R. A. Broomfield, Barnsdall Oil Co.; Rush Blodgett, George F. Getty Inc.; C. P. Watson, Milham Exploration Co.; Hooper Dunbar, Bellview Oil Syndicate; J. B. Dabney, Dabney-Johnson Oil Corp.; Alphonzo Bell, Santa Fe Springs royalty owner, Fred Ripley, Chanslor-Canfield Midway Oil Co.; E. D. McAdams, Rohde & McAdams Oil Co.; S. P. Mosher, Signal Oil and Gas Co.; S. C. Graham, Graham & Loftus; F. M. Kincaid, Lloyd Corp.; R. M. Smith, Ventura Land and Water Co.

H. P. Grimm and Niel Anderson, oil umpires, and W. E. Dunlap, director of the Independent Petroleum Association of California were also present.

Big Gas Production Brings Changes in Gas Traps

LOS ANGELES, March 23

THE theory and practice of gas trap installations and various types of derrick foundations showing comparative labor costs of each, were discussed in papers presented at the meeting of the Pacific Coast production division of the American Petroleum Institute here on March 20.

R. A. March, engineer, Shell Oil Co. of California pointed out in a paper on design and installation of gas traps and vapor systems that present equipment is undergoing rapid changes to meet requirements for handling the production of large oil and gas producing companies. He described common methods of installing separating equipment, particularly multiple stage separation, and suggested that the choice and installation of back pressure regulators to control the gas outlet is worthy of special consideration since the satisfactory operation of the separators depends greatly on the regulation obtained. He included cost data for various combinations of oil and gas separators and for vapor systems.

The theory of multiple traps and vapor systems was discussed by P. S. Magruder, engineer, General Petroleum Corp., who defined the solubility of gas in relation to pressure and its temperature.

Three factors, he said—the difference in specific gravity between gas and oil, reduction in velocity, and gas-oil ratio—determined largely the size and number of traps necessary and to some degree, the pressure to be carried on the trap. Much of the paper dealt with the effect of trap pressure on the gasoline content of the gas and figures were presented indicating that as the trap pressure was increased, the gasoline content of the gas decreased to a marked degree.

Recent trends in rig foundations and drilling equipment

used at Kettleman Hills and labor costs of each, were discussed by Arthur F. Wilson, engineer, Standard Oil Co. of California. A cellar-type foundation, Mr. Wilson pointed out, required 1902 man-hours to build; an open type, 1779 man-hours and an open special type, 2529 hours. Various installations for rotary foundations were also described in which it was pointed out that the trend had been toward the use of fabricated steel work for greater portability.

Discussion which followed his paper indicated that California operators were using auxiliary hoists in place of the standard end, several expressing the belief that in the near future installations would eliminate the standard end.

Union Leads Again In Crude Cut

LOS ANGELES, March 20.—Basing its action upon an uneconomical relation existing on the Pacific Coast between crude and refined oil price structures, Union Oil Co. for the second time took the lead in reducing posted prices for crude oil in California fields.

General Petroleum Corp. met the Union cut almost immediately and Associated Oil Co. followed on March 18, but it was not until March 20 that Standard of California effected a similar reduction.

Differences in the price offered for various gravity oils by purchasing companies under the first cut were ironed out in the new schedules as identical price ranges were set up.

Union announced that its previous price cut did not bring crude into line with the selling price of its products and that since March 10 refined oil prices have dropped further.

In the new schedules fields in the state were divided into two main groups, those in the Los Angeles Basin and those in the San Joaquin Valley. No prices were quoted for Kettleman Hills and special prices prevailed at Playa del Rey and Elwood Terrace.

New prices are shown on page 105.

Deep Wells Were Drilled Straighter In 1930, A.I.M.E. is Told

LOS ANGELES, March 20 EQUIPMENT manufacturers and oil well surveying companies gave a number of papers and discussions on straight hole drilling before a meeting of the American Institute of Mining and Metallurgical Engineers, March 18, during the second annual California oil exposition.

E. R. Dale of Dale and Nielson presented a paper on the most common causes of crooked holes, in which he outlined methods of drilling and straightening holes and described the characteristics of holes which, though not crooked in an exaggerated sense, may still cause serious mechanical trouble if not recognized and remedied.

Improper application of weight was laid as the cause for the most prevalent cases of crooked holes. This was thought due to either an uneven feed or the failure to take into consideration the varying hardness of strata.

Such other factors as, the tendency of operators to crowd the bit in order to make hole at a greater speed, the caving of formation caused by holding the bit off bottom while circulating and rotating for a considerable period, an uneven speed of rotation, the failure of pumps to deliver sufficient fluid to carry away the cuttings, and various minor causes, were held responsible for crooked holes.

To aid in drilling straighter holes, Mr. Dale suggested that core barrels should fill the hole nearly to gauge, as large a diameter drill pipe should be used as the size of the hole will permit, and the mud should be kept at the proper consistency to remove cuttings rapidly.

Other papers of interest to the engineers included a comparison of verticle drift in some million feet of hole surveyed during the first half of 1930, presented by Alexander Anderson.

The accompanying table shows a comparison of the average drift in rotary holes for the past three years:

	Average Drift in feet		
Depth of hole	1928	1929	1930
500 feet	10	7	8
1000	34	24	25
2000	104	70	76
3000	205	135	141
4000	308	203	189
5000	516	304	258
6000	793	422	402
6500	.....	463	391
7000	.....	535	459

This table indicates that, while the drift above the 4000 foot horizon in 1930 exceeded the deviation from the vertical in 1929, there was an improvement of approximately 15 per cent in holes drilled below 5000 feet.

There was considerable discussion on the question of friction in the drill pipe and its effect on the accuracy of surveying methods relying upon orientation of the drill pipe at the surface.

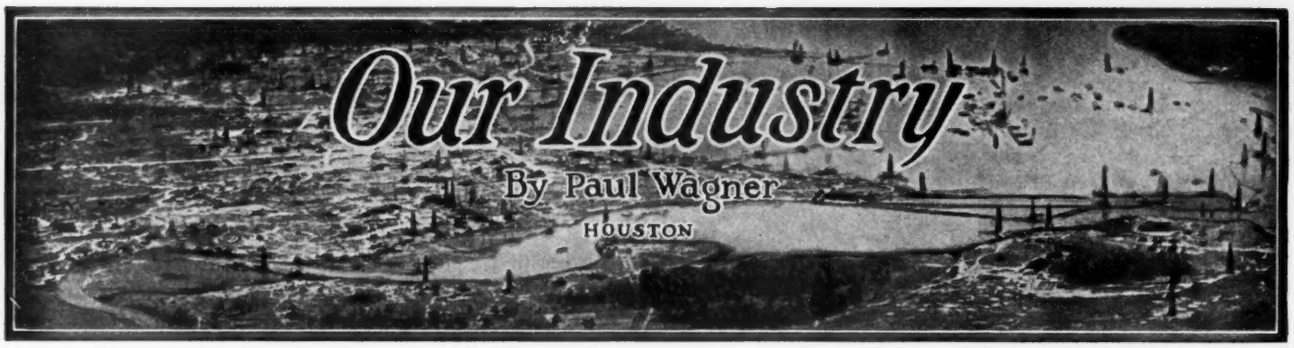
A lengthy talk was given on the operating principles of the Sperry-Sun surveying instrument, which operates through the use of a gyroscope, level bubble and motion picture camera.

There were 168 exhibitors at the new show grounds at Alameda and 131st St. Estimates were that 15,000 oil men would view the exhibits before the close of the show March 22.

Along with the usual assortment of drilling equipment that appears to get heavier and stronger with each exposition, there was a definite trend toward the exhibition of equipment designed to measure and indicate various weights, pressures, and temperatures.

Whether this equipment was for determining the weight on drilling bits, the pressure and temperature in refinery operation, or for gauging the flow of air and fluid through pipes, general improvements toward accuracy were to be noted.

In conjunction with the exposition, technical societies held meetings, both at the show grounds and in Los Angeles.



OIL scouts of the Texas-Louisiana-Arkansas and New Mexico territory, who comprise the National Oil Scouts Association of America, will hold their annual convention in Dallas, May 11-12, it was decided by the executive committee headed by Earl Whitcomb of the California Co., San Angelo. John H. Langston of Sun Oil Co., Dallas, and J. W. Selby of the Shell Petroleum Corp., Dallas, are joint-chairmen of pre-convention arrangements.

Executive committee .members taking part in the conference that brought decision to hold the convention in Dallas included besides Mr. Whitcomb: Hilary Hebert, Tyler; C. J. White, San Antonio; W. E. Thompson, Fort Worth; George E. Robinson, Houston; C. A. Strahan, Tyler; Everett Meaders, Wichita Falls; C. W. Wise, Eastland; Frank Jackson, Fort Worth; N. B. Larch, San Angelo; J. V. Adams, San Antonio, president of the association; and J. E. Beall, San Antonio, secretary-treasurer.

* * *

"Andy" Ecklund, formerly at Wichita Falls, is representing the Barnsdall Oil Co., in East Texas, making headquarters at Tyler for land department work.

* * *

Familiar faces among those individuals who are directing major company operations on the ground in East Texas include E. C. Lawry of the Shell Petroleum Corp., formerly at Wichita Falls; Emmett Wilson of the Magnolia Petroleum Co.; R. C. Barbour of Humble Oil & Refining Co., formerly at Jacksonville but now at Kilgore; Joe Russell and H. H. Taylor of the Gulf Production Co., Houston.

* * *

Lester C. Turman, head of the independent oil company at Fort Worth that bears his name, was a recent visitor to Monterey, Mexico. Press dispatches from Monterey indicate he may locate there permanently.

* * *

E. D. Holcomb, for many years identified with the Gulf Refining Co. of Louisiana producing division at Shreveport, and later Louisiana field manager for the Magnolia Petroleum Co., is operating in East Texas in partnership with Hugh Fitzsimons, drilling contractor and producer.

* * *

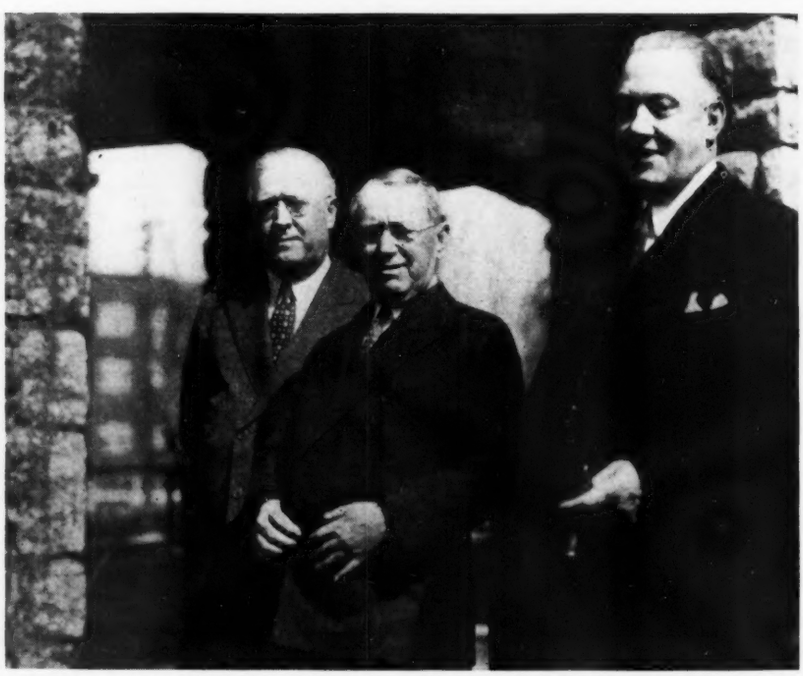
O. L. Brace is now at Tyler for East Texas operations of the Corana Oil Co., in which he is associated with Corsicana capitalists. Since the Corana's organization several years ago, Mr. Brace has made his headquarters successively at Roswell, for southeastern New Mexico, and Austin, for southwest Texas. Mr. Brace was at one time with the old Marland Oil Co. of Texas at Shreveport and later Laredo.

* * *

James O'Donohoe is drilling and production superintendent at Henderson, East Texas, for the Federated Oil Co., composed of Wichita Falls independents. The Federated operates in the Joiner and Kilgore areas of northwestern Rusk county.

* * *

W. W. Keeler has returned to Tulsa as geologist of the Minnehoma Oil & Gas Co., following the closing of the Fort Worth office of the allied Getty Petroleum Corp.



Officials of the National Oil Scouts Association, left to right: J. V. Adams, president; G. C. Phillips, vice president; J. E. Beall, secretary-treasurer; W. E. Whitcomb, chairman of executive committee

L. P. Garrett Elected President Of Geologists Association

By Paul Wagner

N. P. N. STAFF WRITER

SAN ANTONIO, March 21 ALL 1931 officers of the American Association of Petroleum Geologists, headed by L. P. Garrett of Houston as president, were elected without opposition at the sixteenth annual meeting in San Antonio, which began March 19.

Elected to serve with Mr. Garrett were L. C. Decius, Associated Oil Co., San Francisco, succeeding Ralph D. Reed of Los Angeles as first vice president; Frank R. Clark, chief geologist, Mid-Kansas Oil & Gas Co., Tulsa, succeeding Marvin Lee of Wichita as second vice president in charge of finances; and Frederic H. Lahee, chief geologist, Sun Oil Co., Dallas, re-elected third vice president in charge of editorial work.

The retiring president, Sidney Powers of the Amerada Petroleum Corp., Tulsa, automatically becomes an ex-officio member of the executive committee, succeeding John Y. Snyder of Shreveport.

The Society of Economic Paleontologists and Mineralogists, meeting in conjunction with the A. A. P. G., elected Dr. Charles E. Decker of the University of Oklahoma, Norman, to succeed Dr. Joseph A. Cushman of the Cushman Laboratories, Sharon, Mass., as president.

W. S. Atkins of the University of Texas, Austin, was named vice president succeeding C. C. Church of San Francisco. Gayle Scott of Texas Christian University, Fort Worth and Raymond C. Moore of the University of Kansas, Lawrence, were reelected secretary-treasurer and editor, respectively.

A wide variety of technical papers ranging from conditions affecting the accumulation of oil to studies of its accumulation made up the three-days program of the geologists, who numbered approximately 1000 in attendance.

Special attention was given to fields in the Gulf Coastal plain of Texas, including the Mirando, Pettus and Luling fault zone districts, for which San Antonio is an operating center.

Discussing factors governing accumulation in the Mirando and Pettus districts, and their application to other areas, Orville L. Brace, now of Tyler, Texas, referred to the Pettus district producing sands as confined to a stratigraphic section limited by basal Frio sediments above and middle Yegua below, described geologically as mainly Fayette in age. This section, he said, is similar to that of the Mirando (sometimes called Laredo) district.

In the Mirando district, he had found accumulation occurred in narrow strike lenses, formed under conditions of shoreline deposition, in which differential porosity had formed traps. Source material from which the oil and gas were derived was deposited within, or adjacent to, the present producing sands. True structural deformation is ordinarily absent, although faulting and folding may have exerted a minor influence.

PRESENT knowledge of conditions at Pettus, in the general Corpus Christi district, indicated to Mr. Brace that similar factors caused oil and gas segregation in the area. In the Pettus field proper, he described accumulation as occurring within a lensing sand which follows a definite strike trend; Mr. Brace adding that there is no evidence of positive structural influence.

The general geology of northeastern Mexico, where extensive wildcatting is now proceeding out of Monterrey headquarters, was dealt with by James L. Tatum of the Continental Oil Co., of Mexico, S. A., who described the areal distribution of Tertiary sediments and compared them with their Texas equivalents.

IN MEXICO, the formations become more definitely marine in character; and the regional dip is much greater, affording better opportunity for study of outcrops and assuring more certainty in their correlation.

Regarding the Darst Creek prorated field of the Luling fault zone, H. D. McCallum of San Antonio described it as the fourth Edwards limestone producing area in southwest Texas.

After migrating up-dip from the southeast, the oil in the Darst Creek field was described as trapped in the upper 50 feet of the porous Edwards limestone of Comanchean age, which was faulted up against the impervious beds on the downthrown side of a vault. Similar conditions were found in the earlier developed Salt Flat and Luling fields of the same general district.

The maximum vertical displacement along the fault, as calculated on top of the Austin chalk, was described as approximately 525 feet. In addition to wells producing from the Edwards he referred to several yielding oil from faultplane cavities and two from reworked serpentine deposits.

Exclusive of the Appling area

of Darst Creek, where the last mentioned wells are located, the productive part of the field approximates 1500 acres, four and a half miles in length and in places exceeding 3500 feet in width. Of the 252 wells drilled at Darst Creek, only 11 were failures and total production from July 16, 1929, to Jan. 1, 1931, had been 11,237,151 barrels of 37 gravity oil.

Gulf Coastal Texas papers were highly technical in the main, but special attention attached to a discussion of overhanging caprock and salt at the Barbers Hills dome, in Chambers county, southeast of Houston.

Sidney A. Judson and P. C. Murphy of the Humphreys Corp., who presented the paper, said that Barbers Hill is a shallow salt dome in which the upper part of the intrusion is in the form of an inverted cone, that is to say the caprock and salt extend outward from the main salt mass.

The explored edge of overhang is farthest from the surface on the west flank of the dome, but its inner limit is yet undefined. The existence of possible successive lower overhangs has not as yet been determined.

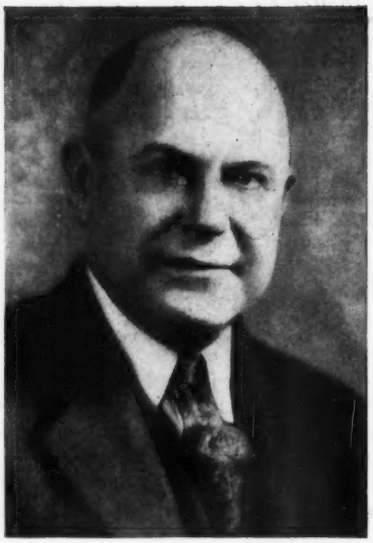
Prior to Feb. 15, 1931, a total of 21 test wells had been drilled through projecting caprock and salt back into sedimentary formations.

Producing sands below the overhang were described as undisturbed by it except where they occur within the first few hundred feet, where much secondary mineralization and tilting of beds at high angles occur.

A few other Coastal salt domes have similar projecting ledges of dome material, although these have been comparatively unexplored by drilling.

The new type of development assumes great importance when it is recalled that prior to the new practice found possible at Barbers Hill the reaching of salt or dome material in nonproductive tests was considered equivalent to failure of the test involved.

Discussions touching other producing fields in the current eye of the industry, such as the Hobbs district of southeastern New Mexico and the Kettleman Hills region of California were mainly with regard to technical phases of structure.



L. P. Garrett, vice president, Gulf Production Co., Houston elected 1931 president of American Association of Petroleum Geologists

Other technical subjects included such discussion as temperature gradients, status of microscopic work in the industry, studies of oil field waters and physical characteristics of sands.

Arrangements for the convention were in the hands of the San Antonio section of the association of which Douglas R. Semmes, consulting geologist, is president; Herschel H. Cooper, consulting geologist, vice president; and Ed W. Owen, division chief geologist of the Wentz Oil Corp., secretary-treasurer.

In addition to providing San Antonio entertainment features, field trip to the Monterey district of Mexico and the Balcones fault region of Texas were arranged for the close of the convention.

WASHINGTON, March 23.—Another suit to test the government's right to withhold oil prospecting permits on public land has been filed. James Farraher of Los Angeles has asked for a writ of mandamus from the District of Columbia supreme court directing Secretary Wilbur to issue a permit.

Gasoline Plant Men Have Full Program

TULSA, March 21.—A full day's program has been prepared for the annual Ranger District Plant Operators' Meeting, under the auspices of the Natural Gasoline Association of America. It will be held at Thurber, Tex., March 31. Dean Hiatt, of the Texas Pacific Coal & Oil Co., chairman of the association's plant operators' meetings committee, is in charge of the program and arrangements. It is expected that about 200 will attend.

Dr. E. R. Lederer, vice-president of the Texas Pacific company, president of the Natural Gasoline Association, will preside. The meeting begins at 10 a.m. with a paper, "Handling of Plant Materials," by C. F. Wilson, Lone Star Gasoline Co. Others at the morning session are "The New Natural Gasoline Specifications," E. W. Zublin, Texas Pacific Coal & Oil Co., and "Operation of Fractionating Towers," P. M. Raigorodsky, Tulsa.

After luncheon at the Thurber Club, the meeting will be resumed with the following papers:

"Treating Light Gasoline," Hoke Martin, Matheison Alkali Works; "The Operator's Part in Production Costs," L. B. Woods, Phillips Petroleum Co.; "Operation of Field Lines and Drips," R. L. Ponsler, Consolidated Gasoline Co.

Under the heading of the "Tour Man's Viewpoint of Plant Operation," talks will be given by H. S. Hefner, operator, Texas Pacific Coal & Oil Co., on plant operation; R. V. Burns, engineer, Lone Star Gasoline Co., on engine room operation. These will be followed by general discussion.

In the evening safety talks will be made by A. W. Breeland, Lone Star Gasoline Co.; Don Wallace, Mid-Continent Oil & Gas Association and H. N. Blakeslee, American Petroleum Institute.

Entertainment features will include music by the "Tickville Band" and a dance at the Thurber Club.

Pyrolysis and Destructive Hydrogenation Of Heavy Crude Oil Fractions

By V. N. Ipatyev*

Part 1

THE cracking process is applied technically in order to convert high boiling hydrocarbons, with a high molecular weight and high specific gravity, into low boiling liquid fractions of low specific gravity, which resemble gasoline in their properties. Gasoline production by ordinary distillation is not sufficient to satisfy the demand for light fuels due to the limited amount present in each variety of crude oil.

This limit cannot be exceeded without subjecting the molecular components of the heavier constituents to vigorous reactions. Many methods have been developed in order to increase original gasoline yields among which are improvements in the methods of distillation including developments of bubble towers, while application of the thermodynamic principles of fractionation has led to almost complete recovery of gasoline from crude oil.

Previously two to three per cent of the gasoline based on the crude oil remained unrecovered in the heavier fractions. This recovery now takes care of from nine to ten per cent of the gasoline demand. Further additions to the gasoline supply amounting to ten per cent of the total gasoline consumed in the United States result from natural gas by means of the compression absorption method.

Revolutionary improvements in the construction of internal combustion engines have contributed to the conservation of gasoline; engines of 1927 being 100 per cent more efficient than those of 1912.

Improvements in methods of treating have led to lower treating losses, mainly by partial substitution of inert materials for the sulfuric acid method. Sulfuric acid reacts strongly with unsaturated and aromatic hydrocarbons, which represent the most desirable components of gasoline. These components permit the use of high compression ratios in internal combustion engines, a feature of great importance in the automobile field.

The application of fuller's earth, silica gel, etc. in part for sulfuric acid produces a marked qualitative effect. Such methods are receiving wide attention and are the basis for many important investigations now being carried out.

There is a certain limit to all of these more or less rational treating methods as far as improving yields of the gasoline originally present in crude oil. This is, however, overcome by utilization of a cracking process which may be considered as a disruption in the internal structure of the hydrocarbons making up crude oil.

The efficiency of such a process is determined by high yields of gasoline with the smallest amount of undesirable by-products such as gas and coke.

THE simplest concepts of the cracking process could be explained as follows: When the hydrocarbons of high molecular weight are subjected to heat (particularly under high pressure) a preliminary rearrangement of their moleculars is undergone; they are transformed from stable to less stable forms which are subject to decomposition. This decomposition leads finally to the formation of fragments of the original compounds which again are subjected to some isomeric transformations and finally appear in the form of gasoline.

Usually this decomposition is accompanied by side reactions, the latter depending on local overheating which is very difficult to avoid and which result in the formation of coke, a very undesirable product. This separation of coke makes it impossible for the process to be carried out continuously, because it requires a cleaning of the apparatus and therefore a periodical discontinuation of the process.

AS SHOWN by the latest investigations on cracking of hydrocarbons of high molecular weight of the aliphatic series in an ideal case a separation of coke should not take place[1] because decomposition of long chain hydrocarbons produces simpler molecules, forming two less complicated hydrocarbons, one a paraffin—and the other an unsaturated compound.

$$RCH_2—CH_2—CH_2—CH_2—CH_2R = RCH_3 + CH_2=CH_2CH_2CH_2R.$$

Such an ideal case could not possibly be encountered in practice, because the technical cracking stock available will always be a mixture not only of the paraffin series but also of the naphthene and aromatic series, and the behavior of the two last series will at elevated temperatures naturally be different from that of the aliphatic hydrocarbons.

Of course the paraffin hydrocarbons will behave in accordance with the above equation and it is of value to investigate this equation first.

The first member of the right side of the equation is a saturated hydrocarbon designated as RCH_3. On carrying out the process for a sufficiently long period it will be subjected again to the transformations mentioned before, i. e. it will be transformed again into a saturated hydrocarbon of a

*Member, Leningrad Academy of Science.

[1] A. P. Sachs, Chem. Ztg.: *53*; 65-76, 86-88, 107-108, 147-149 & 167-168 (1929); C. A.: *23*, 2560 (1929).

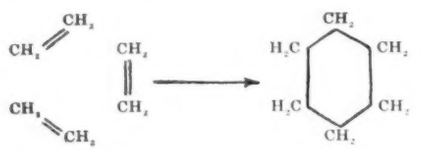
lower molecular weight and an unsaturate hydrocarbons.

The destiny of unsaturated hydrocarbons formed in the course of the cracking process is worth while investigating. According to Engler's investigations[2] on distilling crude oil residues, completely soluble in sulfuric acid, decomposition products are formed which are composed of paraffin and naphthene hydrocarbons insoluble in sulfuric acid, and of unsaturated hydrocarbons soluble in acid, the proportion of the latter hydrocarbons increasing with the increase in the distillation temperature, whereby the formation of gases sets in beginning with 300°C.

The low boiling fractions contain methane homologues rich in hydrogen as well as olefines and naphthenes, while the high boiling fractions contain hydrocarbons poor in hydrogen, such as terpenes and hydroterpenes besides olefines and naphthenes. Referring to the formation of saturated hydrocarbons from olefines the research carried out by Day should be mentioned. He obtained not only high boiling products, but also methane, ethane, amylene, etc., on heating ethylene to 400°C.

The behavior of ethylene hydrocarbons at elevated temperatures, was the subject of a very careful investigation by V. N. Ipatyev[3] after a new factor, pressure, was introduced. The ethylene (as well as isobutylene) liquefied in the high pressure apparatus is subjected to a peculiar condensation reaction at 380°-400°C. It produces a crude oil-like liquid composed of various hydrocarbons, from which saturated, ethylene and naphthene hydrocarbons have been separated. The remaining gases are composed of ethylene and methane.

The formation of naphthene hydrocarbons from olefines might be explained as follows:



[2]Ber.: *30*, 2908 (1897); Brit. C. A.: *74*, I, 165 (1898).

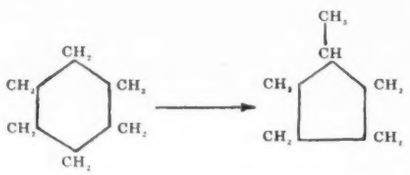
[3]J. Russ. Phys. Chem. Soc.: *45*, 995 & 2009 (1913); C. A.: 7, 1170 (1913); Ber.: *46*, 1748 (1913); C. A.: 7, 3972 (1913).

The course of the process is indicated by the pressure. This experiment alone proves without doubt that cracking under pressure gives higher yields of liquid and lower yields of gaseous hydrocarbons. This fact should not be underestimated when deciding on commercial possibilities of different cracking processes.

To show that not only ethylene itself is ready for a condensation reaction, described above, but this property is also in existence with ethylene in the nascent state (a fact which should always be considered in any commercial scale cracking process) a decomposition of ethyl alcohol was carried out by V. N. Ipatyev and Klyukvin in the presence of alumina and at high pressure and a temperature of about 450°-460°C.[4]

IT IS well known that ethylene is produced from alcohol in the presence of alumina. This ethylene, being in the nascent state is immediately condensed resulting in a product which in its hydrocarbon radical is identical in every respect with the product obtained by polymerizing ethylene directly under pressure. As an illustration of the complicated nature of the process which unavoidably accompanies all pyrogenetic reactions under pressure, the isomerization of cyclo-hexane as carried out by V. N. Ipatyev and Dovgolevich is quite an interesting example[5].

On heating this hydrocarbon in a bomb to about 500°C. in the presence of alumina the authors observed an isomeric transformation of the cyclohexane into methylcyclo-pentane:



Thus the six membered polymethylene ring is converted into a five membered ring under the influence of high temperature, a catalyst and high-pressure. According to A. V. Baeyer's hypothesis a five membered ring is more stable than a six membered ring with regard to chemical reagents as well as high temperatures. It is very interesting to note that the isomerization of cyclo-hexane into cyclo-pentane is carried out only under high pressure.

Experiments carried out with cyclo-hexane at ordinary pressure and at a temperature up to 700°C. showed under these conditions that methyl-pentamethylene is not formed at all. Thus the isomeric transformation of cyclic compounds is influenced not only by the temperature and by the catalyst but also by the pressure.

The following will deal with cracking of any type of heavy crude oil fractions. It is true that single individual components present in the original material are not known; however it is quite probable that besides paraffin hydrocarbons, poly-naphthenes, etc., hydrogenated poly-cyclic compounds are present in the original oil[6]. Such hydrocarbons belong to the series C_nH_{2n-2}, C_nH_{2n-4}, etc. These complicated systems of condensed and partly hydrogenated rings are very unstable at high temperatures.

Parallel to the decomposition processes and the formation of unsaturated hydrocarbons, which are partly gaseous products, the process of dehydrogenation takes place, resulting in the formation of poly-aromatic hydrocarbons, which as a rule have high boiling points and have a tendency to run to coke at the elevated temperature of the cracking process particularly at high pressures. Such a case was investigated by the author[7] and furthermore by A. Sachanen[8] with anthracene, tetralin, chrysene and quite a number of hydrocarbons and their hydrites of high molecular weight, the presence of which in crude oil can not be disregarded and which evidently are responsible in part for

[4]Proc. Academy of Science U. S. S. R. Section "A"; 1924, 186; Ber.; *58*, 4(1925); C. A.: *19*, 1420(1925).

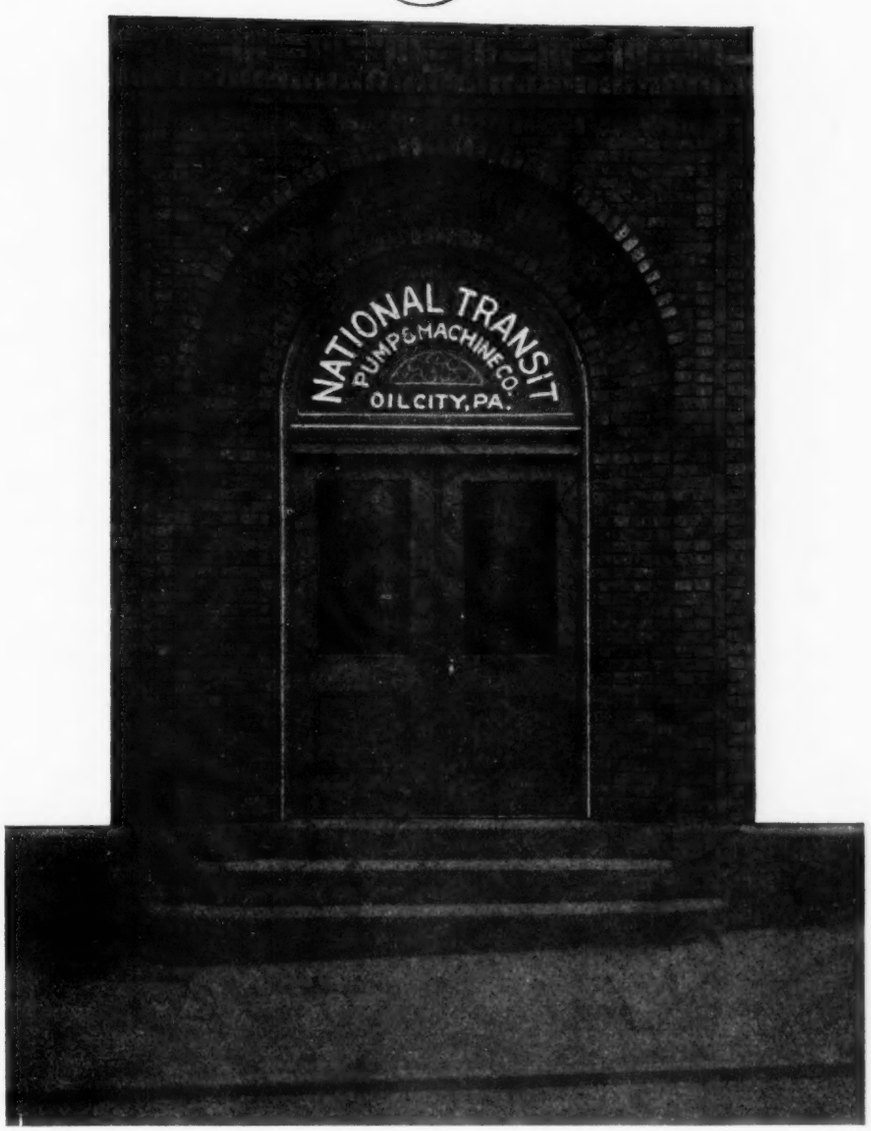
[5]J. Russ. Phys. Chem. Soc.: *43*, 1437 (1911); Ber.: *44*, 2987(1911); C. A.: *6*, 736(1912).

[6]Cf. L. Gurvich, "Scientific Principles of Petroleum Technology," London, 1926.

[7]Ber.: *60*, 1968(1927); C. A.: *22*, 396 (1928).

[8]A. Sachanen and M. Tilicheyev, "Cracking in the liquid phase," 1928, p. 143 (Russian).

There is no crape on this door



the viscosity of heavy mineral oils.

The formation of coke as well as of other highly condensed undesirable products can also proceed by different ways. The most recent experiments of Orlov and Belopolskii[9] showed that perhydrides of acenaphthene and fluorene, etc. (thus the hydrocarbons of the C_nH_{2n}-$_4$ series) produce, on cracking, indene and cyclo-pentadiene besides aromatic hydrocarbons. The tendency of the former towards condensation and polymerization reactions naturally leads to the formation of hydrocarbons of high molecular weight, tars and coke, as a final product.

QUITE a few proofs of the inavoidable formation of coke in a cracking process on a commercial scale could be cited, particularly in cases, when gasoline is the main product desired.

The cracking of mineral oils by distillation with aluminum chloride, regardless of the high quality of light distillates obtained, is always accompanied by the formation of heavy tars, because the hydrogen required for the saturation of light fractions formed is taken from the residual original product until it is converted to bottoms and coke, a fact which had been thoroughly shown by Pictet. This property of aluminum chloride to hydrogenate hydrocarbons by destroying a part of them was investigated by N. Orlov, who used for this purpose some of the condensed aromatic hydrocarbons such as phenanthrene, anthracene and fluorene. This reaction was always accompanied by the formation of large amounts of coke[10].

The cracking of mineral oil products under pressure as was shown by V. Ipatyev and L. Gurvich[11] of distinct advantages in comparison with ordinary vapor phase cracking, because in the first case much less gas is formed. A certain reservation should be made in this case, which is, that all assumptions just made with regard to the formation of coke in the cracking process are of importance mainly when cracking heavy hydrocarbons, bottoms, fuel oils, etc.

When for example pyro-naphtha (gas oil cut) or gas oils, etc., which are comparatively light crude oil fractions are cracked there is scarcely any coke formation. Commercially, however, the heavier crude oil fractions are of the greatest interest for obtaining high grade fuel from the practical point of view. Here, attention should be given to fuel oil and particularly to paraffin base fuel oil. But such oils when cracked yield high percentages of coke making such an operation doubtful from a practical point of view.

Beginning with 1904 it was shown by V. N. Ipatyev in quite a number of investigations that pyrogenetic reactions are carried out in quite a different direction in the presence of hydrogen than in its absence. In the presence of hydrogen, products were always obtained of a higher degree of saturation while the formation of coke was reduced to a minimum.

Simultaneously it was discovered that in carrying out some of the simplest pyrogentic reactions with aliphatic compounds, without the use of hydrogen but under a high pressure the products obtained differ from those obtained by ordinary pyrogenesis by their lower content in unsaturated hydrocarbons. The latter fact is due to the cyclization of unsaturated hydrocarbons formed, simultaneously with the paraffin hydrocarbons the former thus being converted into a hydro-aromatic compound.

LATELY Waterman and Perquin carried out a very thorough cracking investigation with paraffin under pressure and arrived at the same conclusion.

In the course of further investigations[12] in the period 1913-1917 Ipatyev and Gurvich undertook a systematic investigation of cracking of heavy crude oil products (solar oil, "astralin," pyro-naphtha) in the liquid phase. It was found that on filling the bomb completely with pyro-naphtha (gas oil cut) in which case the gas phase was absent at the beginning of the reaction the reaction of cracking still takes place and the same products are formed in this case as in the vapor and liquid phases.

DUE to the fact that the experiments were carried out in a steel bomb it was interesting to ascertain the extent of the catalytic action of the steel walls of the bomb. Experiments were carried out in which fused glass tubes were placed in the bomb whereby the vapor pressure developed inside of the glass tubes was compensated by that developed by the same pyro-naphtha charged in addition into the bomb. No difference in the reaction products was observed. It was found further that an addition of other catalysts such as Fe_2O_3, Al_2O_3, $MgCl_2$, etc., do not show any noticeable catalytic effect.

The following series of cracking experiments was carried out under constant pressure, releasing the gases through the valve, so as to hold the pressure in the apparatus constant. In this case on comparing with the previous experiment an increase in the amount of light fractions was noticed which is explained by the fact that many light hydrocarbons did not have time to become polymerized.

In the course of further investigation the experiments were modified in so far as the pyro-naphtha was continuously charged into the heated reaction chamber (bomb) while the cracked products were continuously discharged through condensers at a constant pressure. This was the method used in laboratory experiments with liquid phase cracking. The up to date refinery equipment is based on principles which are actually quite identical with those applied by the author in his investigations.

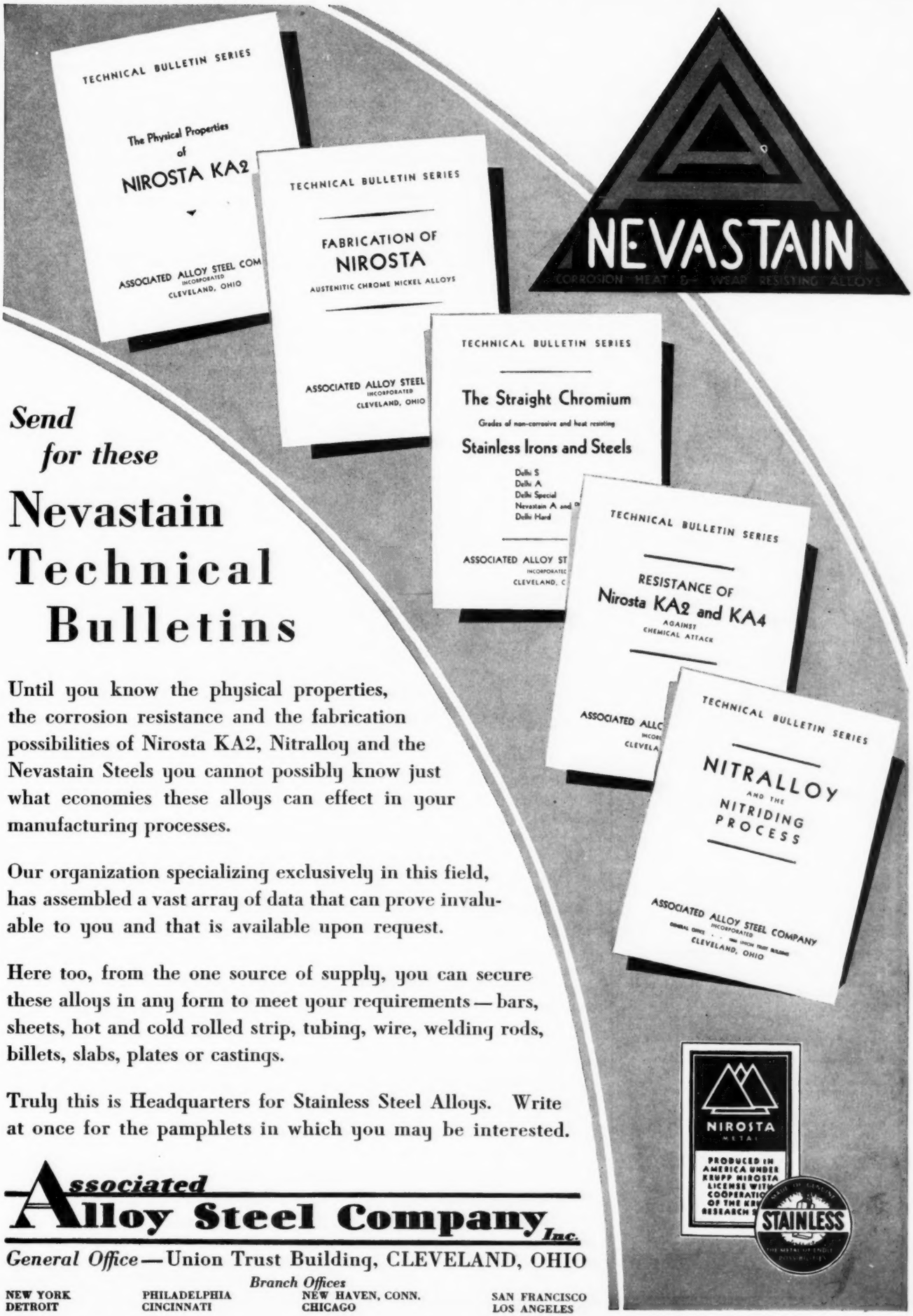
In the course of further in-

[9]Ber.: *62*, 1226(1929); C. A.: *23*, 4465 (1929).

[10]J. Russ. Phys. Chem. Soc.: *60*, 1447 (1928); Ber.: *62*, 710(1929); C. A.; *23*, 2174 & 3926(1929).

[11]"Decomposition of pyro-naphtha at high temperature and pressures," Monograph. Petrograd, 1920, 32 pages.

[12]V. N. Ipatyev and L. Gurvich. "Decomposition of pyro-naphtha at high temperatures and pressures." Petrograd, 1920.



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Treating

Reduction of sulfur in gasoline to prescribed limits is still a chief problem in light oil treating.

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Vapor phase treatment cheaper, gives 14% better knock rating Feb. 11, p. 59
Treatment of cracked petroleum distillates: sulfuric acid and split plumbite treatment; soap washes; acid and doctor solutions; vapor phase treating; continuous treating plants; mixing, settling and separating devices; gasoline treating plants; shell still operation; pipe still rerunning; operating precautions Jan. 21, p. 51; Jan. 14, p. 57; Jan. 7, p. 63; Dec. 31, 1930, p. 46; Dec. 24, p. 49; Dec. 17, p. 61.

1930

Description of Edeleanu sulfur dioxide treating process Dec. 24, p. 55
Effect of time, temperature in treating cracked distillates Nov. 12, p. 121
Circulation cuts litharge treating costs Nov. 12, p. 101
Cottrell process gets acid mist from concentrators Oct. 15, p. 67
Eight-stream unit solves distillation problems Sept. 24, p. 135
Sulfur limitation in gasoline June 18, p. 69; June 11, p. 41.
Acid recovery plants—description of processes May 21, p. 72
Acid recovery plants—light and heavy sludges May 14, p. 66
Continuous treating and dispersion contactors March 12, p. 32-F
Treating light distillates; action of sulfuric acid and caustic soda March 5, p. 57

1929

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Neutralization best method of combating corrosion Dec. 11, p. 36
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Free sulfur greatest corrosive agent in cracking plants Dec. 11, p. 89
Gum in gasoline not indicated by color Dec. 11, p. 93
Inhibitors stabilize gasoline color and knock rating Dec. 4, p. 40
Methods to combat corrosion in pressure stills Dec. 4, p. 49
Degasification, etc., of pressure distillate Oct. 30, p. 60
Skimming, cracking, lube making from Ranger paraffin crude June 26, p. 80; June 19, p. 78; June 5, p. 73

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National Petroleum News

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vestigation it was decided to test the usefulness of a destructive pyrogenation in the presence of hydrogen under pressure. Crude oil residues (fuel oil) were selected for the experiments, because this treating method has gained at present such a technical importance in the West (Europe) which can readily be ascertained by the numerous patents taken out to protect the preparation of gasoline, as well as by the existence of large firms which treat fuel oils by the Bergius method.

The first Bergius patent which refers to the conversion of high boiling point hydrocarbons into gasoline was taken out in May, 1913 and the entire development of the method on a commercial scale was carried out in the plants of the Aktiengesellschaft für Petroleumindustrie in Nuremberg. A systematic investigation of various crude oil fractions was carried out, from the lightest to the heaviest, and particularly when working with asphaltic crude, methods for a continuous charging of the raw material into the reaction chambers, which are now used in the technical liquefaction of coal, were developed[13].

Regardless of the apparent technical progress which has taken place recently with the hydrogenation of coal and petroleum products we are almost entirely ignorant with regard to the chemistry of the process. It is quite possible that investigations carried out in this direction are not published on account of trade secrets carefully guarded in the West (Europe).

However, to carry out the conversion of oil products into gasoline in a predetermined direction, to make this process clear to all concerned in all details, it appeared not only absolutely desirable but also necessary to investigate it with the simplest and as far as possible with individual compounds, the presence of which, or at least related compounds could be assumed in the technical raw material.

Based on these assumptions, a systematical investigation of the pyrogenetic dissociation products of numerous organic compounds under pressure with hydrogen was undertaken by the author about three years ago. Special attention was given to hydrocarbons, the basis of these original products, which were expected to produce on pyrolysis the light varieties of fuel.

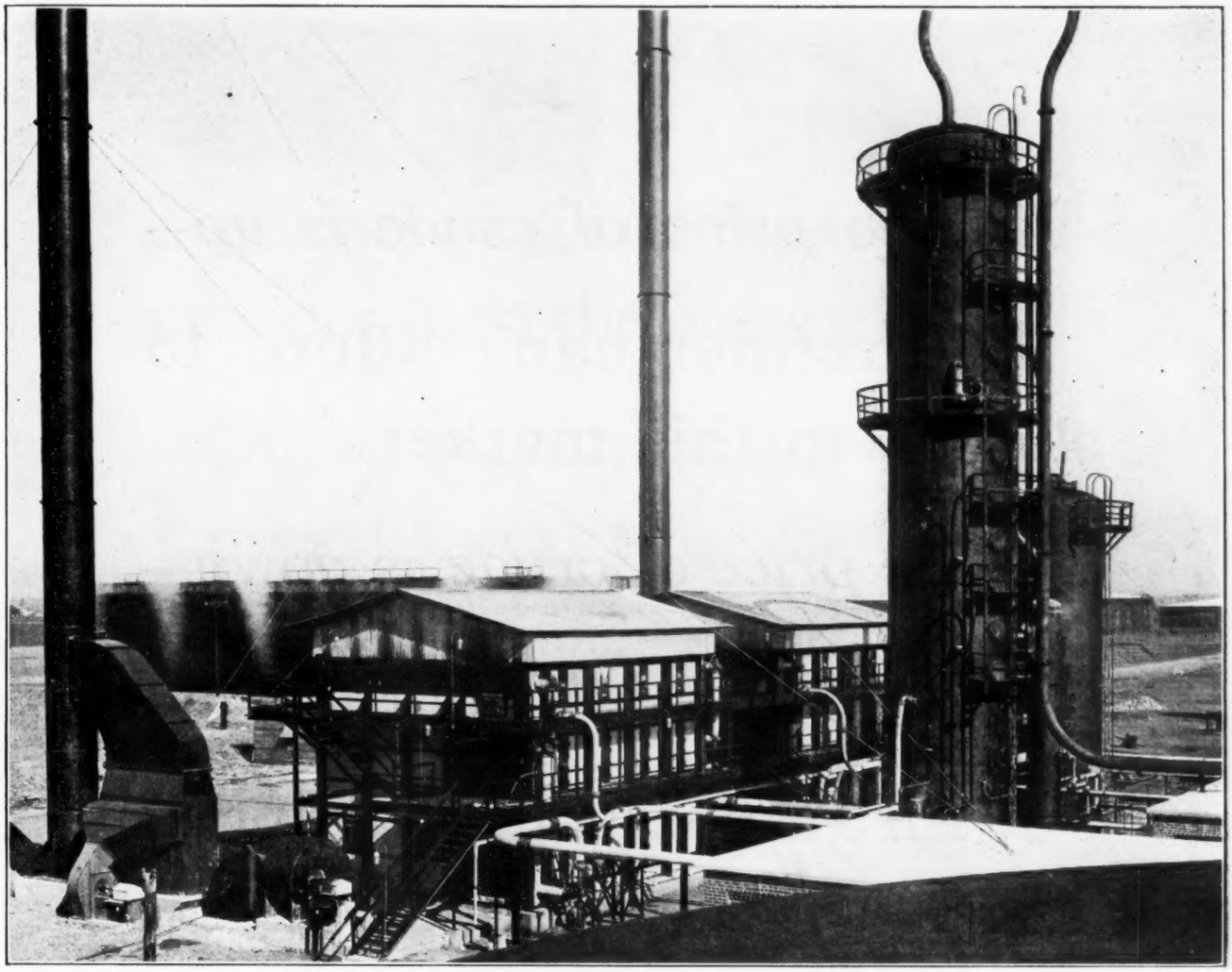
This work was accompanied by considerable experimental difficulties which we succeeded in overcoming thanks to previous investigations carried out by the author in his laboratory; experiments with high pressure, investigations which were in a high state of perfection and warranted the reliability of results to be obtained in the new problem.

One of the most important points of the investigation undertaken was to determine the lowest possible temperature limits where the dissociation of the molecule of the organic substance is carried out at a sufficiently high velocity, without being subjected simultaneously to an extreme decomposition which is accompanied by the formation of small fragments, i. e. gaseous products.

It was found that quite a number of hydrocarbons, phenols, bases, acids, i. e. just the compounds which can be considered as the components of complicated and important technical mixtures and products, require for the above decomposition a temperature of about 440°-460°C. In the case of chemically pure compounds this temperature can be considerably lowered by the use of some catalysts, but these additions can not be made in a technical process because of their sensitivity to catalyst poisons.

We do not insist that 440°-460°C. is the temperature of decomposition in the absence of catalysts. We are more inclined to the reverse, because all our experiments were carried out in an iron and steel apparatus; therefore the catalytic action of the walls can not be denied, particularly, when considering the strong catalytic action of iron exercised in a number of reactions, as was proved in previously investigations carried out by the author.

[13]W. Friedmann. "Die Verflussigung der Kohle nach Bergius." 1928.



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New Distillation System Employs Thin Film Principle

By Arch L. Foster
N. P. N. STAFF WRITER

KANSAS CITY

DEVELOPMENT of the art and science of refining petroleum products may be said to be dependent on, and controlled by, the advances which are made in the art of distillation and fractionation. In fact many technologists voice the opinion that all important progress in refining is dependent on improvement in the technique and technology of this initial step in the manufacture of most petroleum products.

A new system for heating liquids has recently been developed by the experimental department of the B. P. Lientz Co. of Kansas City, Mo., and has passed into the large-scale plant stage of investigation. Some radical departures from conventional still design have been incorporated in the new process, to obtain results which, those responsible for the development believe, mark a new step in the progress of distillation technology.

The main features of design and operation of the new system are the maintenance of a thin film of oil in direct contact with the heating surface, this film traveling at a high rate of speed spirally from top to bottom of the heating tube, or vice versa; immediately and positive removal of hydrocarbons from contact with the heating medium as soon as vaporization takes place; greater ease of separation of vapor and liquid; parallel flow of heating gases and liquid to be heated, in the same direction; practical elimination of entrained liquid particles in the passing vapors; and the absence, to the maximum degree practically feasible, of decomposition and consequent damage to raw distillate, as is occasioned by overheating or prolonged exposure to excessively high temperatures.

According to the statements of the designers of the new system the net results are a very high rate of heat transfer, of heating efficiency, and the production of distillates requiring a greatly reduced amount of chemical treatment, in many cases no chemical treatment, to prepare finished products comparable to those now manufactured by existing processes. A large amount of laboratory data has been obtained to show the results obtained in a practical way, a small portion of which data will be included in this paper.

A series of articles showing in detail the results obtained in handling specific charging stocks to produce definite types of distillates, and exhaustive data giving the properties of the products made, will be published later. This article deals

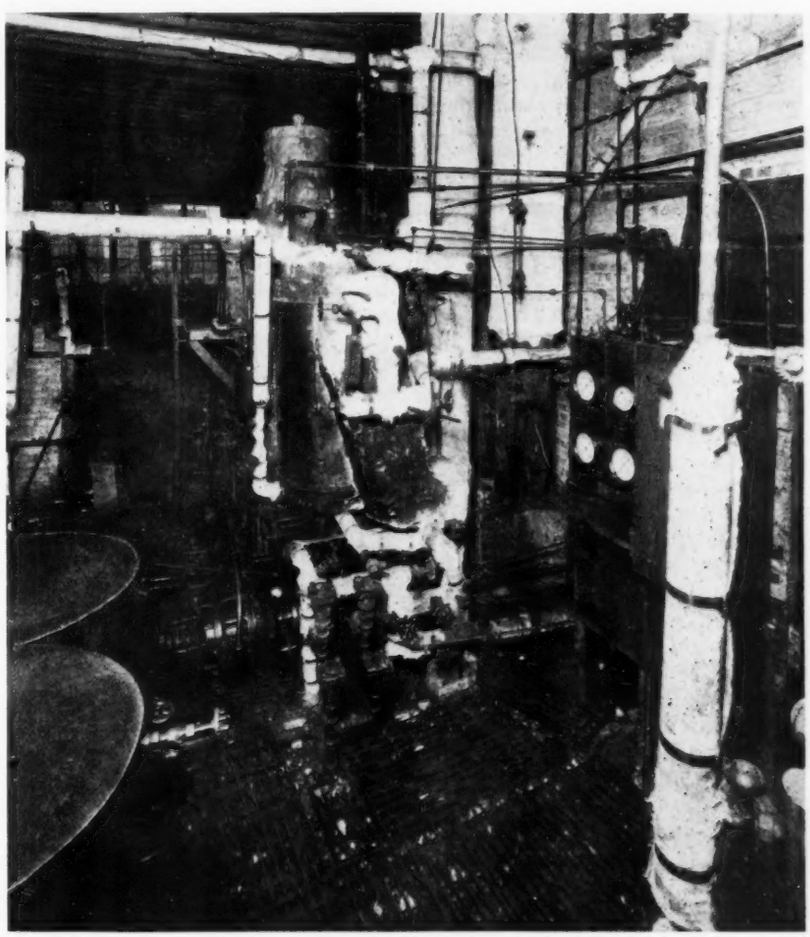


Fig. 1—Tube still of D'Yarmett Distillation unit, showing still, motor, pumps, oil and vapor lines, tower and instrument board

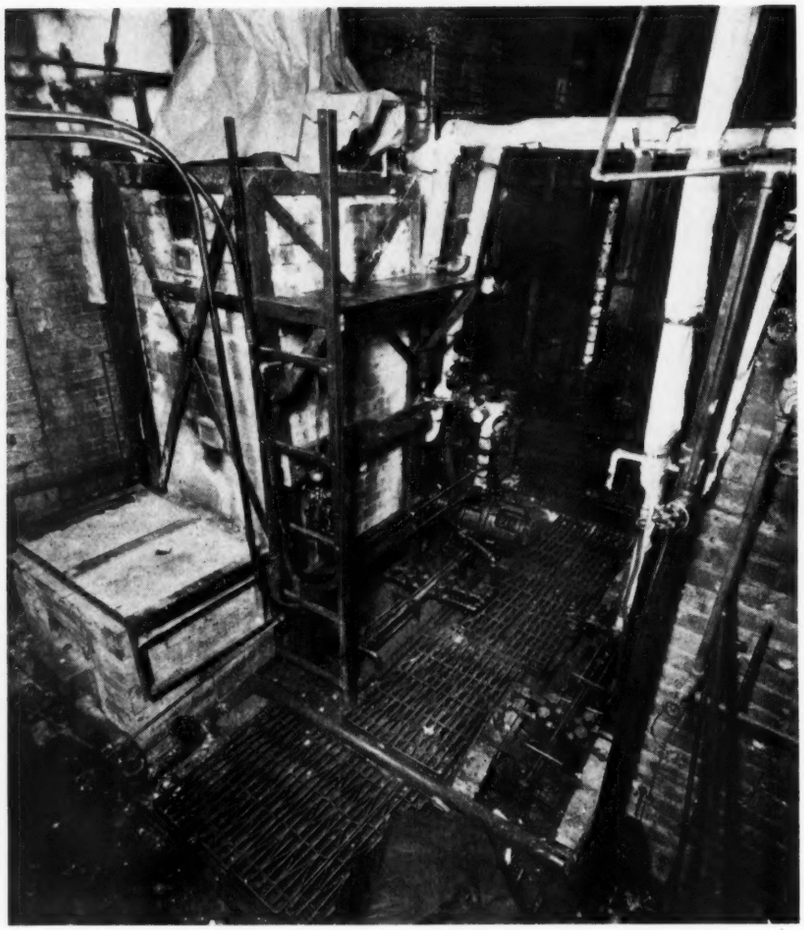


Fig. 2—Combustion furnace of D'Yarmett still unit. Note small reciprocating pumps, lower center

with the general phases of the principles involved, the design of the equipment, difficulties encountered and how these have been surmounted in practice, as well as general results obtained on representative crudes.

The basic patent for this process was issued to E. C. D'Yarmett, of Kansas City, Mo., U. S. Pat. No. 1,732,805, Oct. 22, 1929, assigned to the Fractionator Co. of Kansas City. This and other patent rights were later acquired by the International Petroleum Processes, Inc., of which B. P. Lientz is president, Geo. C. Armstrong and H. R. Stoltz, vice presidents, and O. K. Herndon, treasurer. The development of the process has been carried out, by the two companies interested, at the plant of the parent company in Kansas City, Mo., during the last three years. Large scale development work, and design of plants for the application of the principles to refinery distillation problems, are being handled by the company staffs.

The new "heating plant," designed primarily on the principle of thin film heating, consists essentially of a six-inch, heavy walled, alloy steel tube, set in a sheet steel jacket; through this tube a stiff steel shaft fitted with vanes; furnace and recirculating equipment; a steam jacketed tower of the bubble type, and the necessary condensers, steam generator, charge and flow tanks, heat exchangers, charging, distillate and reflux pumps; thermocouples and other control equipment.

Details of the still are shown in Fig. 4. The heavy-walled tube through which the charge passes, and in which it is heated, is sufficiently rigid to prevent warping or vibration, and is supported centrally in the steel jacket. Charge inlet pipes enter this tube at bottom or top as may be desired; the top of the heater tube ends in a chamber, from which an outlet pipe at the bottom removes unvaporized liquid. A double outlet line at the top carries vapors to the bubble tower.

The annular space around the heater tube receives the combustion gases from the furnace, and baffles inserted as shown in the figure conduct the gases around the tube and to the outlet to the stack. This jacket is heavily insulated with asbestos, which is covered by sheet metal.

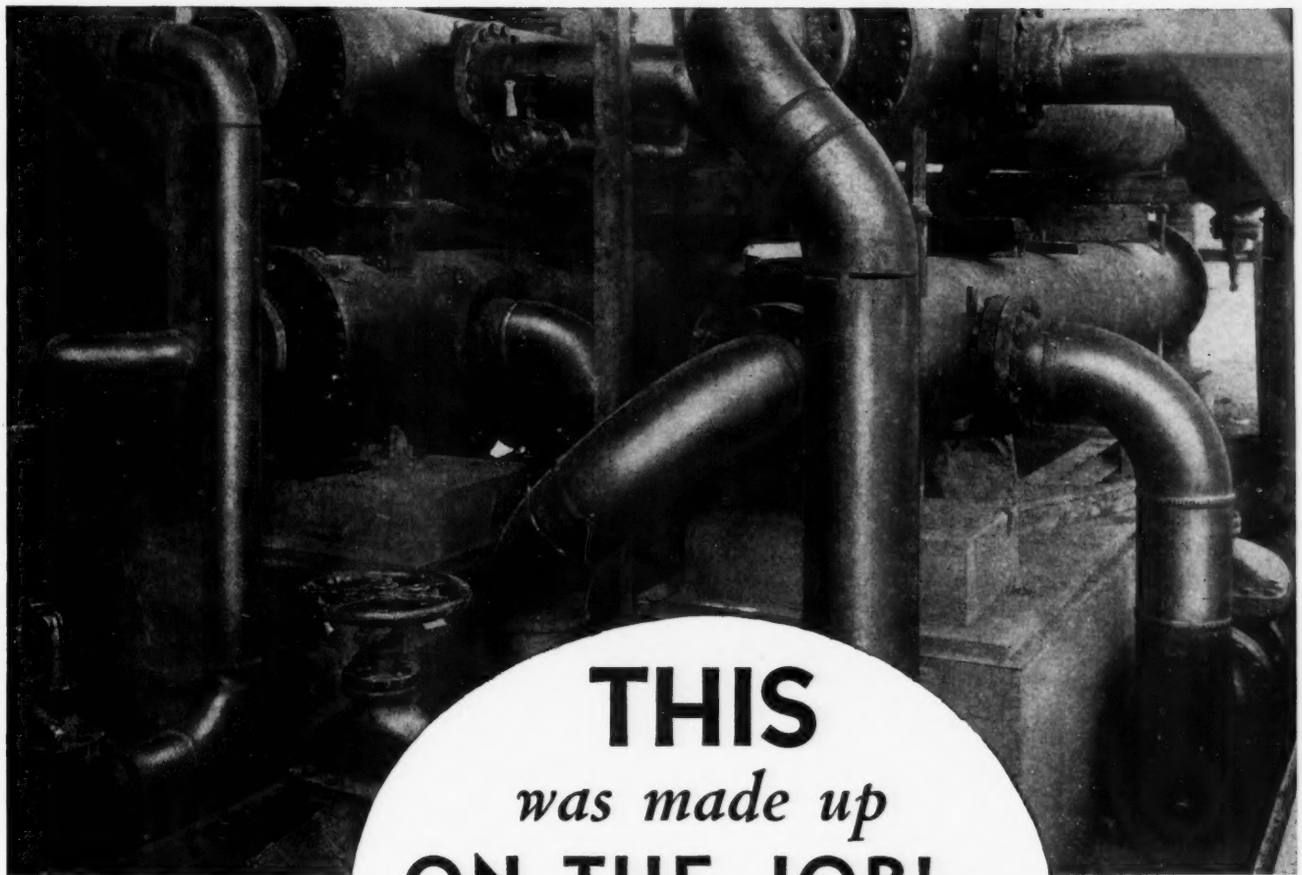
The rotating shaft which carries the six vanes is hollow, for strength and lightness. It passes through specially designed bearings at each end, consisting of stock sizes of SKF in specially designed mountings and is connected to the reducing gear from the driving motor through a flexible coupling. The vanes are welded to rings at regular intervals, and the rings are set to the rotating shaft.

Since this shaft, its bearings, and packing, are probably the most important mechanical details of the process, a great deal of attention was concentrated by the developers of the process on the correct solution of this phase of the problem. And, according to their expressed opinions, supported by positive results so far obtained, the difficulties have been solved in an entirely satisfactory manner.

The bearings, shown in detail in Fig. 6, are a combination self-aligning and angular contact, permitting exact adjustment to suit all conditions. They operate in a bath of lubricating oil, which is circulated by a small pump, driven from the driving motor shaft, to both the upper and lower bearings through pipes, and cooled in order to hold the temperature of the bearings at the desired point.

The solution of the problem of properly sealing the shaft at the points of entrance to the heater tube, as finally worked out after months of trial and the testing of a large number of different designs and materials, has been particularly satisfactory, according to the engineers who handled the problem. Cooke seal rings, shown in Fig. 6, are pressed into glands by spiral springs, the rings being of asbestos composition. These rings have been used very successfully also in electric refrigerator work.

The tension on the spring can



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be varied, to suit any set of conditions both by the weight and length of the spring itself as well as by ring inserts which decrease or increase the spread as conditions may require. Operating in a bath of oil the seal is cooled properly, and is perfectly tight according to the officials. Observation by the writer of the operation of the plant showed no detectable leakage at any time. The plant has been operated at pressures within the still tube as high as 750 pounds per square inch without the least difficulty with the seal.

The power required to operate the rotor in the still tube is extremely low, and according to company engineers is practically negligible from a cost standpoint. Their investigations have disclosed that this power for the rotor is less than that required for pumps to overcome the frictional resistance in a conventional pipe still. Data on this point have been obtained which indicate that the difference is relatively important, but details of this work and will be completed and published in a later article.

The still is provided with manifolds and valve system so that the charge may be introduced at the bottom and products removed at the top, or the direction may be reversed, at the will of the operator. In the case of operating under pressure the vapor manifold is equipped with valves so that all outlets may be closed except one, and the pressure controlled by a globe valve in that outlet. A liquid level control and "well," in the liquid outlet, with a valve, effectually seals that outlet against vapor exit.

The furnace consists of a typical "dutch oven" arrangement, fitted for either oil or gas firing. The oven connects directly with a brick combustion space separate from the heating jacket of the still, through which the burning fuel passes to the still furnace. An insulated breeching connects this combustion space to the still furnace.

Recirculation of a portion of the furnace gases is furnished by a recirculating fan and ducts designed on the Lientz system,

as shown in Fig. 5. Part of the gases are picked up on their way to the stack by the fan, passed again into the combustion furnace, through the still furnace and out, to complete the cycle. Steam is passed through a coil in the stack as shown in the figure to furnish superheated steam as may be desired.

An evaporator is placed between still and tower to be used or by-passed as desired. A run-down line from the bottom of this avaporator is provided. The bubble tower employed in the experimental large-scale plant is a six-inch diameter tower, set inside a 12-inch pipe as a jacket. The jacket is insulated in conventional manner, and into the annular space between tower and jacket, steam is admitted to warm up the tower at the beginning of a run.

It is to be understood that this tower jacket is not an essential part of the design. It is employed merely for the purpose of heating up the tower to facilitate getting the unit "on stream" as soon as possible after starting a run, since otherwise the tower must be heated by the condensation of vapors from the still, a much slower procedure in intermittent operation. Continuous operation such as obtains in regular plant practice would obviate the necessity for this heating jacket.

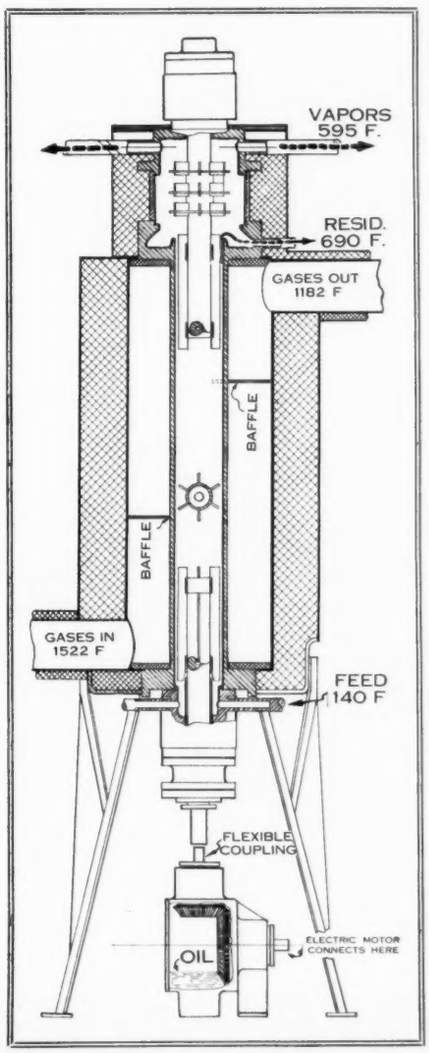


Fig. 4—Elevation of D'Yarmett still

This particular tower was constructed of six-inch pipe sections 15 inches long, and between the sections a bubble plate carrying a single riser and cap is inserted flangewise. The vapor line from the still enters just above the fifth plate from the bottom. Draw-off and cooler for the heavy bottoms from this tower are provided, with condensers and coolers of conventional type for overhead and side cuts. Five plates at intervals above the vapor inlet are provided with draw-offs for taking side cuts of almost any specifications that may be desired.

Temperature control of the unit is by a Leeds and Northrup 10-point indicator. Thermocouples are inserted in the still furnace inlet and outlet, oil inlet and outlet, vapor outlet at the still head, vapor inlet to tower, tower top, and in the steam superheater, with two extra points for use at different points as desired.

Operation of Plant

Charging stock of any sort desired is pumped to the still by means of a steam-operated plunger type pump. The rotor in the still is regulated to operate at 1800 r. p. m., the vanes having 1/16-inch clearance between their edges and the inside of the tube.

As the oil is fed into the tube it is picked up by the vanes and carried, in a thin spiral film of a maximum thickness equal to this clearance, upward or downward as the case may be, through the tube. In the case of bottom charging, this thin film of oil is heated in passing upward, until at the top of the still the unvaporized oil overflows the edge of the tube, falls into the bottom of the upper

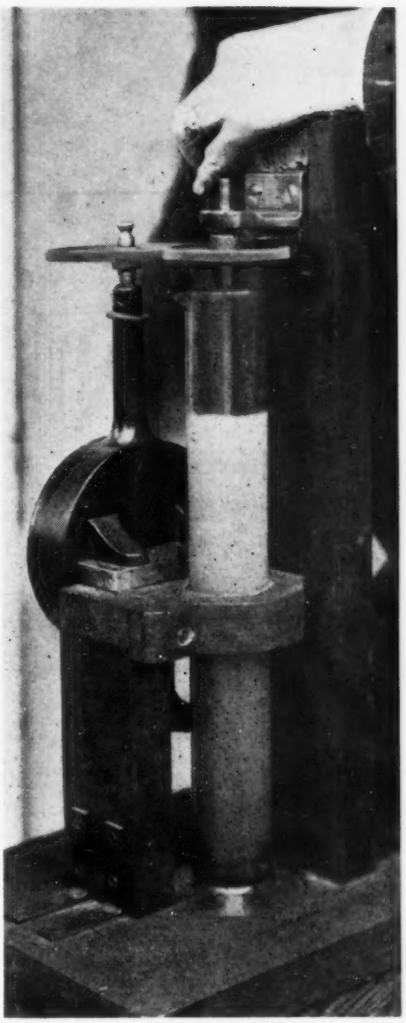


Fig. 3. Small demonstration model of still, showing action of oil under impact of rotor vanes to maintain thin oil film on inside surface of tube

chamber and is carried away through a cooler to storage.

Vapors are forced necessarily toward the center of the tube as soon as formed, passing out to the tower from the chamber to the top through the manifold mentioned above, to be fractionated in the conventional manner. These two features of the heating system constitute the unique developments of the new distillation equipment and process.

In any distillation system, two results are desirable to obtain in as great degree as possible. One is that the liquid be heated to the maximum temperature, usually the vaporizing temperature, as quickly as is practicable, reducing the time of exposure to the heat of the still to the lowest possible limit. The second is that vapors be

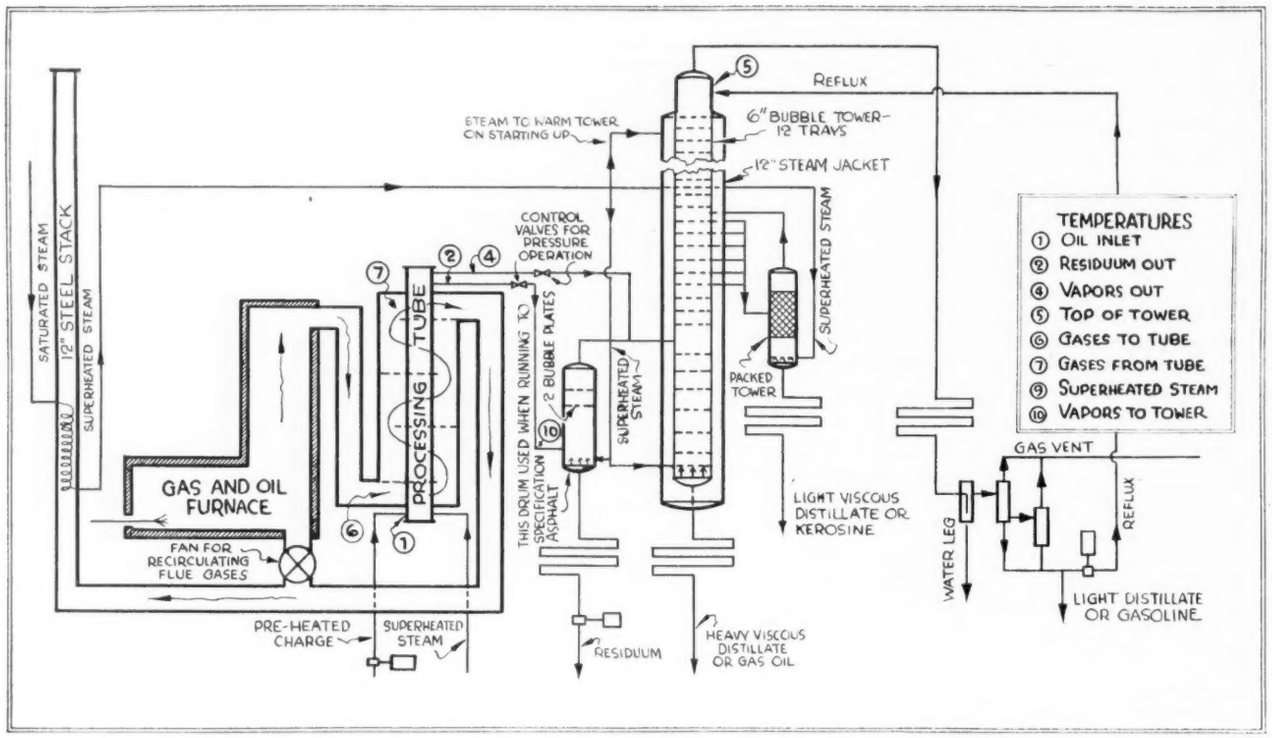


Fig. 5. Flow diagram of large-scale experimental D'Yarmett still unit

removed from the heating zone as soon as formed, in order to minimize the undesirable decomposition which will occur at higher temperature.

One of the company officials, in discussing this subject, stated, in effect, that the optimum conditions of refinery operation is that wherein it is necessary to remove, by chemical, physical, or other treatment, only those undesirable constituents, those impurities, which are unavoidably present in the distillate or residue by reason of existence in the original crude. In other words, when a cut or fraction contains only the undesired materials naturally present in that fraction, none of which have been produced or increased by the manner of handling the oil previous to its reaching the chemical treating stage of refining, treatment is reduced to a minimum.

This means that the distillation step should be carried out with the irreducible minimum of damage to the fraction obtained. Limiting the temperatures employed for vaporization to the lowest practicable, reducing the time of exposure to the minimum, both for liquid and for the resulting vapors formed, will, under any given set of conditions, reduce this damage or decomposition to the lowest practicable limits. And it is this limitation which the engineers claim for the new process.

In support of these claims, the engineers point out that the optimum conditions for speedy, economical heating, that is, film heating, is obtained continuously, evenly, and under definitely controlled conditions. That this is true is apparent to the observer that a study of the equipment and the conditions of operation.

The film is positively maintained at a definite thickness under conditions which should insure even distribution of heat over all adjacent parts of the still tube inside and outside. It appears to be practically impossible, at least very unlikely, for temporary stoppages to occur, under any conditions of operation, which would localize either heating or the collection of unusual amounts of oil in one part of the tube as compared to other portions of the tube at the same instant.

Forcing oil through the still in a regular manner seems to be positive enough to satisfy the conditions demanded. A demonstration of the action of the oil is shown in Fig. 4, which illustrates the path followed by the oil under the impact of the rotor vanes.

Parallel flow of heating gases and liquid to be heated is obtained, whether the flow is upward or downward. However, counterflow of gases and liquid can and will be employed in applications where it is desirable or advisable. Company engineers point out that in the event of stoppage of the rotor, the rate of oil flow is such, that, on account of the small volume of the still tube, the latter will be filled quickly, and the heat required to carbonize this oil in the tube will be imparted to it comparatively slowly, enabling adjustments to be made before any detriment should occur, especially preventing damage to the still or the "coking up" of the still tube. Stoppage of the charging pump and the consequent stoppage of oil flow to the still is a situation ever present in tube stills of the conventional type, and is similarly provided against by stand-by pumps in the new system.

The second condition, that of removal of vapors from contact with the heating surface as soon as the vapors are formed, is evident from a consideration of the details of the still and its

operation. The centrifugal force imparted to the oil forces it against the inside of the still tube where it picks up heat from the gases on the other side, through the metal wall, its velocity in a manner tearing away the "stationary film" adhering to the wall, thus increasing the overall heat transmission coefficient.

By reason of a much lower specific gravity, the vapors, as soon as formed, are forced toward the center of the tube, in the free space between the oil film and the rotating shaft, and from there are carried into the vapor chamber and out to the tower through the vapor manifold.

While in the still tube the vapors are blanketed from the highest temperature, that of the still wall, by the layer of oil constantly covering the wall, and are forced outward by the action of the vanes and the generation of more vapor within the tube. The thinness of the oil film promotes the freeing of the vapors from the liquid in the shortest time with a minimum of resistance and time required for escape of the vapors.

It appears then, that, from theoretical considerations at least, the new heating system should produce vaporization of liquid under the optimum conditions already outlined, to a maximum degree. If this be true, the results should be borne out under actual operation by the relative improvement in the condition of the distillate and residuum, and the relative amount of refining necessary to produce finished products comparable or superior to commercial products manufactured by existing processes.

One of the characteristics of the light naphtha obtained by this method is that it is almost always sweet. Laboratory distillation of a sample of crude, which has been distilled in the new still, shows that the gasoline fraction from the crude is sour when obtained by normal distillation. The fraction obtained from the same crude sample by the new system was sweet, and remained so after standing for several months, without chemical treatment, stored in metal tanks.

An interesting adaptation for the filtration of the tower distillates, or residue has been developed and will be applied in plant design. By installing clay filters in the rundown lines from the condensers, distillates may be filtered to any degree that is desirable. This becomes continuous by employing two or more filters in parallel. In the case of viscous distillates the temperature of the oil from the condenser may be so regulated by condenser water temperature control that filtration may be carried out at the desired rate, at a temperature to give the best results as to both distillation rate and quality of product.

Lubricating distillates from the unit are characterized by the low carbon residue of the untreated product, the relatively light color from whatever source the crude is derived, and the simplicity of refining the fractions to meet current standard specifications, according to statements of officials and data obtained on numerous experimental investigations.

A light filtration through fullers earth clarifies the oil to color specification. Without acid treatment the carbon residue, color, and other tests show results well within the customary limits considered standard for the particular product, as evidenced by data obtained in laboratory experiments.

Table 1 is given to show the results of a partial inspection of one sample of a fraction obtained from a 15.0 A. P. I. gravity asphaltic crude, the still operating at a nominal pressure of three pounds. This fraction received a very light clay filtration, without acid or other treatment.

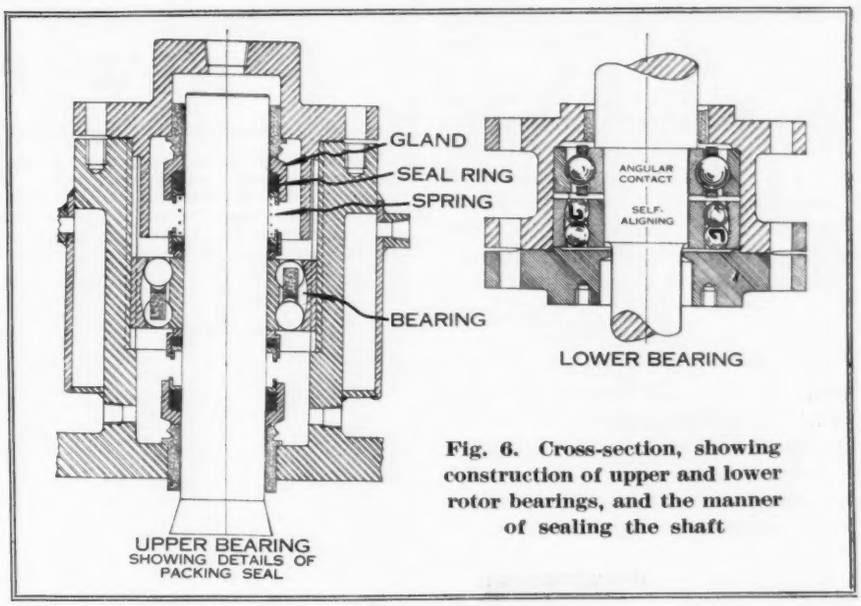


Fig. 6. Cross-section, showing construction of upper and lower rotor bearings, and the manner of sealing the shaft

Table 1

Characteristics of Lubricating Oil distilled from 15° API Asphaltic Crude.

Gravity	16 API.
Viscosity @ 210 F.	69 Univ.
Pour	10 F.
Flash	395 F. (Cleveland Open Cup)
Fire	445 F.
Carbon	0.435

Table 2

Heat Transfer in Operating D'Yarmett Still

Average Temperature of Inlet Oil =140 F.
Average Temperature of Outlet Oil = 690 F.
Average Temperature Furnace Gases to Still = 1522 F.
Average Temperature Furnace Gases to Stack = 1182 F.
Area of inside of still tube = 4.0 sq. ft.
Average Crude charging rate, per hour = 25.5 gals. = 176 lbs.
176 x 550 x 0.72 (Sp. Heat) = 69,696 B.t.u.
176 x 110* x 0.73 (% vaporized) = 14,132 B.t.u.
Total heat units absorbed = 83,828 B.t.u.

$$\frac{83{,}828}{4} = 20{,}957 \text{ B.t.u. per sq. ft. per hour, transfer rate.}$$

*B.t.u. per lb. for vaporization.

In a short test run, observed by the writer, who also checked the data on the run, the rate of heat transfer to the crude per square foot of tube surface was 20,957 B.t.u. per hour. The accompanying table gives the data and calculation of the operation, in which the gasoline, kerosine and part of the gas oil fractions were removed from the crude.

It is interesting to note the comparatively low furnace gas temperature employed in this run, 1522 F. Seventy-three per cent of the charge was vaporized, and yet it was not necessary to use an excessive temperature to obtain the proper rate of volatilization. In fact it has been found that an appreciably lower temperature can be employed than in a pipe still, on account of the higher rate of heat transfer when film heating is actually obtained continuously as in this system.

While a large amount of data has been collected in the laboratory as to the physical and chemical characteristics of the distillates obtained by the D'Yarmett process, and of the comparative amount of refining treatment necessary to manufacture standard commercial products, a much greater amount of data is now being collected, and the discussion of the application of the method to specific refining problems will be left to a later article.

This article is concerned with the principles and some details of the process itself. Later articles will discuss the application of the principles to light oil distillation, lubricating fraction distillation and pressure and vacuum distillation problems, on all of which considerable experimental work has been carried out during the last three years of intensive research on the process.

Truscon Steel Co., Youngstown, O., manufacturer of steel buildings for the oil industry, has appointed Clark P. Pond vice president of engineering and sales. Mr. Pond was formerly in a similar capacity with the David Lupton's Sons Co. He is the originator of the top-hung continuous windows, tension operators and projected windows.

NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

January 13, 1931

REFINING

Pipe still—George W. Watts, Whiting, Ind., assignor to Standard Oil Co. of Indiana. No. 1,789,267.

PRODUCTION

Drilling-bit—John H. Bishop, Long Beach, Calif. No. 1,788,377.

Three-speed friction-clutch drawworks—Edward Timbs, Los Angeles, Calif., assignor to National Supply Co., Toledo, Ohio. No. 1,788,498.

Casing-cutter — George A. Lowrey, Pelly, and Walter F. Hall, Goose Creek, Tex. No. 1,788,579.

Expansible reamer—Edward F. Raymond, Los Angeles, Calif. No. 1,788,633.

Swab for well-drilling apparatus—Benjamin E. Parrish, Fort Worth, Tex. No. 1,788,738.

Casing-head valve—Harry A. Gant and Harry R. Tipton, Los Angeles, Calif. No. 1,788,763.

Overshot fishing-tool — Ellsworth Gray, Houston, Tex., assignor to Gray Tool Co., same place. No. 1,788,829.

Oil-well rotary fishing-tool—Percival C. Corey, Los Angeles, Calif. No. 1,788,912.

Gas and liquid separator for oil-wells—Leo C. Duggan, Sedan, Kans. No. 1,788,990.

Automatic drilling-rig — Calvin T. Maxwell, Huntsville, Tex. No. 1,789,241.

Release-spear — William J. Miller, Sulphur, La. No. 1,789,247.

MISCELLANEOUS

Sealed valve mechanism for liquid-dispensing systems—Arthur T. Wakefield, Baltimore, Md., assignor to American Oil Co., same place. No. 1,788,786.

Carrier for transporting and dispensing liquids (tank truck)—Christopher Cunningham, Jamaica, N. Y. No. 1,788,987.

Lubricant oil—Frederick W. Sullivan, jr., Whiting, Ind., assignor to Standard Oil Co. of Indiana. No. 1,789,026.

January 27, 1931

PRODUCTION

Casing-ripper—Frank Switzer, Inglewood, Calif. No. 1,789,993.

Casing cutting and pulling tool—Bruce Barkis, Hermosa Beach, Calif. No. 1,789,995.

Pneumatic motor for oil-well pumps—Edward C. Ekstromer, San Francisco, Calif. No. 1,790,203.

Slip-elevator—Stewart L. Campbell, Berkeley, Calif. No. 1,790,225.

Fishing-tool — Verne Monroe, Cameron, W. Va. No. 1,790,387.

Well-packer — Charles H. Reynolds, Houston, Tex. No. 1,790,390.

Tool for testing well formations—Edgar C. Johnston, El Dorado, Ark. No. 1,790,424.

Method and apparatus for operating oil wells—Wilfred J. Torrance, Cleveland, Ohio. No. 1,790,450.

Well-drilling tool—Matvey A. Capeliuschnicoff, New York, N. Y. No. 1,790,460.

Float valve for drilling-tools—Harkey M. Macomber, Downey, and Homer H. Pyron, Fullerton, Calif. No. 1,790,480.

Apparatus for forming well-screens—Milton J. Trumble, Alhambra, Calif., assignor to McEvoy Wireless Well Strainer Corp., Los Angeles, Calif. No. 1,790,515.

Core-drill—William H. Harvey, Water Valley, Miss. No. 1,790,542.

Drilling device — Arthur M. Gildersleeve and Charles L. Dean, Denver, Colo., assignors to Universal Rotary Bit Co., same place. No. 1,790,613.

February 10, 1931

PRODUCTION

Gas lift pump—Joseph H. Slocum, Long Beach, Calif. No. 1,791,513.

Fishing-tool — Nelson Lamoureaux, Whittier, and Michael W. Lukes, Compton, Calif. No. 1,791,529.

Fishing-tool—Charles H. Brown, Breckinridge, Tex. No. 1,791,859.

Special fitting and plug magazine for cementing oil and gas wells—Arthur L. Rodgers, Oklahoma City, Okla. No. 1,791,874.

Apparatus for flowing wells by air lift—Wilbert L. Martin, Tulsa, Okla. No. 1,792,107.

Well-drilling mechanism — Richard C. Mason, Tulsa, Okla. No. 1,792,108.

Pumping-jack multiplier, swing, and hold-up—Bert G. Goble, Tulsa, Okla. No. 1,791,297.

Bailer—Colonel C. Heeter, Butler, Pa., assignor to C. M. Heeter & Sons, same place. No. 1,792,301.

February 17, 1931

REFINING

Decolorizing material and method of producing same—Walter S. Baylis, Los Angeles, Calif., assignor to Filtrol Co., same place. No. 1,792,625.

Process for converting hydrocarbons—Jay J. Jakowsky, Wilkinsburg, Pa., assignor to C. & C. Developing Co., Kansas City, Mo. No. 1,792,744.

Treating hydrocarbon oils—William M. Stratford, Port Arthur, Tex., assignor to Texas Co., New York, N. Y. No. 1,792,877.

Purification of lubricating oils—Rudolf A. Wischin, Munich, Germany. No. 1,792,882.

Carbon-removing apparatus—Guy B. Bogart, Lockport, Ill., assignor to Texas Co., New York, N. Y. No. 1,792,887.

Apparatus for converting heavier hydrocarbons into lighter ones—William Landes, Long Beach, Calif. No. 1,792,912.

Process for treating petroleum oils—Lyman C. Huff, Chicago, Ill., assignor to Universal Oil Products Co., same place. No. 1,793,443.

MISCELLANEOUS

Fuel and method of making same (from carbon residue of petroleum distillation)—Richard L. Rodgers, Chicago, Ill. No. 1,793,014.

Refined viscuous hydrocarbon oil—Thomas H. Rogers, Whiting, Ind., assignor to Standard Oil Co. of Indiana. No. 1,793,134.

Refined viscuous hydrocarbon oil—Thomas H. Rogers, Whiting, Ind., assignor to Standard Oil Co. of Indiana. No. 1,793,135.

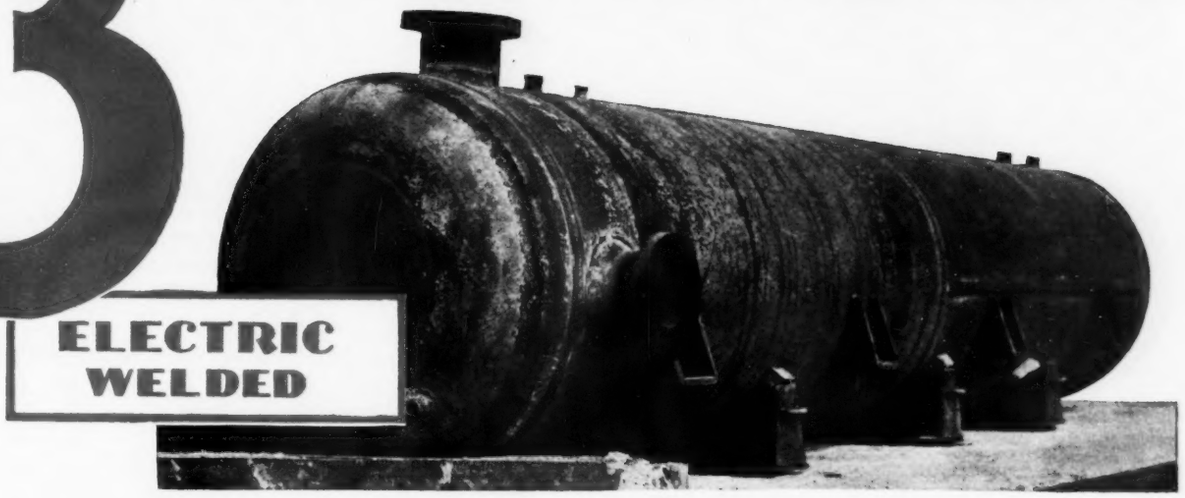
February 24, 1931

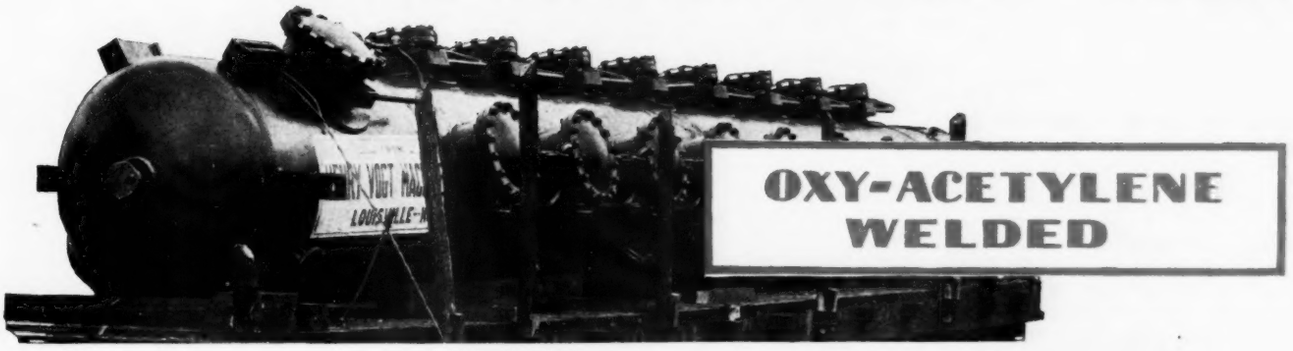
REFINING

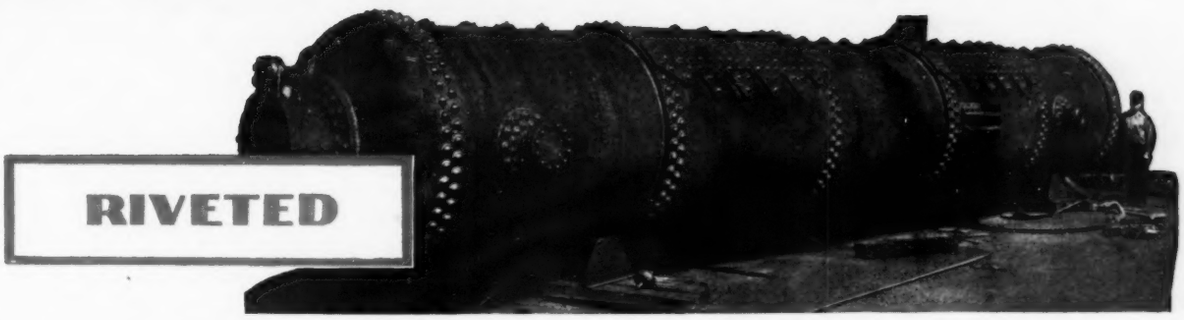
Batch renovator—Clarence V. Fuqua, Kansas City, Mo., assignor to Cleaners Equipment Corporation, same place. No. 1,793,475.

Method of purifying cracked petroleum vapors—Cornelius B. Watson and Rudolph C. Osterstrom, Chicago, Ill., assignors to Pure Oil Co., same place. No. 1,793,885.

3 METHODS







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New Refining Patents

Purifying Cracked Distillates. U. S. P. 1,787,570, Jan. 6, 1931, application filed June 29, 1925, and renewed Oct. 5, 1928; Carbon P. Dubbs, Assignor to Universal Oil Products Co.

IN THE usual procedure for desulfurizing cracked distillates, using sodium plumbite, sulfuric acid and caustic soda successively, it is necessary to use such an excess of sulfuric acid as to cause large losses of distillate; otherwise the product retains so much sulfur as to be unstable in storage. It is believed that this difficulty is due mainly to the presence of carbon disulfide in the distillates; owing to its volatility, this impurity is tenaciously retained by certain distillates.

It has now been found that the hydroxy-hydrosulfide is an effective reagent for removing carbon disulfide; it enters into combination, probably forming a compound having the formula $Ca(OH)_2.CaSC_2$.

Of the various ways in which this reagent can be applied, the preferred method is to pass the cracked distillate and the undesirable gases, as they leave the cracking plant, through a solution of calcium hydrate. The hydrogen sulfide in the gases reacts with the calcium hydrate; the product of this reaction is the desired reagent, calcium hydroxy-hydrosulfide. Thus the invention, introducing into the system no extraneous material except the relatively cheap chemical, calcium hydrate, achieves the double purpose of removing hydrogen sulfide from the gases, and carbon disulfide from the distillate, in the desulfurization of cracked gasolines and the like.

What Is Claimed

Removing sulfur compounds from hydrocarbon distillates in presence of hydrogen sulfide by the action of calcium hydrate and water, whereby calcium hydroxy-hydrosulfide is formed which in turn will react to eliminate carbon disulfide from the distillate.

* * *

Extracting lubricants. U. S. P. 1,788,569, Jan. 13, 1931, application filed July 16, 1927; Seymour W. Ferris, Assignor to Atlantic Refining Co.

IN ORDER to obtain lubricants with the characteristic properties of paraffinic oils, e. g., desirable viscosity range, or of naphthenic oils, e. g., freedom from corona attack when used for insulation, it has hitherto been necessary to start either with a paraffin base or a naphthene base crude, as required. There has not been any satisfactory way of separating the components of a mixed base crude, such as the Mid-Continent oils, into high grade paraffinic and naphthenic fractions.

It has been discovered that calcium naphthenic hydrocarbons are much more soluble in aromatic nitro compounds that are the paraffin hydrocarbons. Hence, by fractional extraction with nitrobenzene or its analogs a mixed base crude can be utilized for production of both types of viscous oils, each having its own desirable properties for specific uses. In many cases, the extracted oils are superior to the best that can be obtained, even from selected crudes, by the usual processes. For example, it is difficult to obtain, even from the best naphthenic crude, an oil low enough in paraffin content to show no formation of corona wax in the conditions encountered by certain insulating oils in practical use; but such an oil can be obtained from mixed base crudes by the new method.

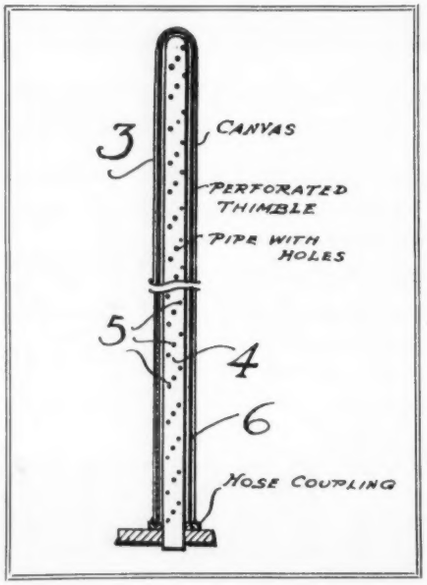
What Is Claimed

Bringing a viscous oil, containing paraffin and naphthenic hydrocarbons, into contact with nitrobenzene to effect solution of a naphthene-rich portion of the oil in the nitrobenzene, separating the nitrobenzene solution from the oil, and removing nitrobenzene from each of the resulting fractions.

* * *

Dewaxing Oils. U. S. P. 1,789,347, Jan. 20, 1931, application filed Aug. 16, 1927; Jules Verner, Assignor to Standard Oil Development Co.

IN AN improved method and apparatus for removing paraffin from oils, the oil is chilled to solidify the wax and is then forced against a filter fabric until a layer of slack-wax is built up on the filter. The oil flow is then stopped, and oil is sweated from the slack-wax by gentle heating, which is continued till the wax layer is relatively pure paraffin, at a temperature of 100-130°F. The paraffin is then melted and withdrawn.



The filter comprises a number of vertical perforated tubes which support filter thimbles of the construction shown in the drawing, in which the thimbles 3 are carried on tubes 4 containing perforations 5. The thimbles are separated from the tubes by sleeves 6 of wire gauze or perforated metal. When a layer of slack-wax is built up on the outside of the thimbles, warm water is admitted to the apparatus to sweat the slack-wax; after this is done, steam is admitted to melt the paraffin.

What Is Claimed

Forcing a mixture of oil and suspended paraffin through a combined filtering and sweating zone to form first a filtrate and a layer of slack-wax, conducting away the filtrate, heating the slack-wax sufficiently to produce a liquid and a solid phase, conducting away the liquid phase, and melting the paraffin and conducting it away.

* * *

Treating Cracked Gasoline. U. S. P. 1 789 413, Jan. 20, 1931, application filed Jan. 25, 1930; Rudolph C. Osterstrom, Julius Hyman and Cary R. Wagner, Assignors to the Pure Oil Co.

IN THE refining of cracked gasolines and other distillates rich in unsaturated compounds, treating costs are high when fuller's earth is used as catalyst, because fuller's earth has very short catalyst life. Sulfuric acid is also a polymerizing agent, but has deleterious effects on the gasoline.

It has now been found that sodium salts of the sulfonic acids made by sulfonation of polymerized hydrocarbons are effective catalysts of polymerization of the unsaturated compounds in cracked gasoline and the like. A continuous system is provided, to take advantage of the efficacy of this inexpensive agent. The new method, by providing a catalyst of increased efficiency, and by obtaining it from the polymerization products themselves, permits a large saving in operating costs in the treatment of cracked distillates.

What Is Claimed

Removing gum-forming compounds from cracked petroleum distillates by vaporizing the distillates in presence of polymerized compounds containing sodium sulfonates to accelerate polymerization of the gum-forming compounds, separating the light oils from the polymerized compounds, and separately collecting the light oils.

A dealer service station of the Atlantic Refining Co. in Miami, Fla.

Most Oil Companies Rent Stations In Florida to Operators

By E. L. Barringer
N. P. N. STAFF WRITER

JACKSONVILLE, Fla.

MOST of the oil companies marketing in Florida rent their controlled service stations to operators. By controlled is meant either stations owned outright or under long term lease.

Two of the biggest companies in the state, the Standard Oil Co. of Kentucky and the Gulf Refining Co., operate their own stations.

The latest recruit to the ranks of companies renting stations is the Shell Petroleum Corp. Shell is gradually withdrawing from company operation of stations, and is renting these controlled outlets in blocks.

From four to twelve stations will be grouped together and leased to one operator. This operator assumes all control of the station, responsible directly to the Shell company.

Eight controlled stations in Jacksonville, for instance, were rented recently. These were divided into two groups of four stations each. Each group was rented to an operator. A similar plan has been followed with stations in Atlanta.

This policy is similar to that adopted several years ago for the operation of Shell stations on the Pacific coast. For the southeastern states the unit of renting has been reduced to the block method.

Shell is not renting out its stations rapidly. Considerable time is being taken to select renters for the blocks of stations. Savannah, Miami and Tampa, for example, have stations still company operated.

One of the requirements for obtaining a lease on Shell controlled stations is that the renter produce material evidence that he will increase the volume of business through these stations.

Where the Standard Oil or Gulf companies have rented company controlled stations it has been as a matter of local policy. Such a case might be in a small town where the man who sought to operate a station would not sign up as an employe. An arrangement then might be worked out whereby the station is rented to obtain the services of the desired man.

With the renting of controlled stations most of them have been converted into a form of one-stop outlets. The oil company owning the station markets its petroleum products through the station, and the operator adds to his list of merchandise stocked by taking on tires, batteries or accessories. In some cases it is fruit, especially on tourist highways.

Soft drinks are sold universally at dealer or rented stations through the South.

The general basis for renting out a station on a gallonage basis is a rental of 1 cent a gallon. As one executive puts it, "1 cent is par."

Some of the aftermath of the

A typical modern station of the Atlantic Refining Co. in Miami, Fla.

1925 Florida land boom is still felt in determining a fixed rental for a station. The problem involves an equitable adjustment of rent between a high price paid for the land or station, and the volume of business the operator can expect to do.

Many cities in Florida have settled down to a normal land value. Adjustments have been made so that station sites may be purchased or leased on a reasonable basis.

A major oil company in Florida recently purchased a station site. The consideration was $9500. Yet at one time that lot carried a mortgage of $90,000.

Some cities and towns, on the other hand, are still asking exorbitant prices. Back of this are the high values once obtained and the desire to salvage as much as possible.

There is also an undertone that within the next two years Florida land will come back. One variation of the anticipated boom is that it will make the 1925 display look insignificant. The other variation is that the boom will be on a sane basis, a move back to normal land values.

Oil companies seeking station sites occasionally run into these exorbitant prices. An oil company recently approached a land owner in a small town to buy several lots for a station. The owner was unwilling to absorb his loss, and his asking price was ten times that which could be paid if the company hoped to realize anything like a reasonable return on its investment.

The capital required of an operator to rent a station is estimated at $300 to $500. This amount is not required by the oil company, but is the amount that should be on hand to stock the station and to carry it through the first months.

Now this sum may not seem large but in some cases it would be considered a fortune. The state has a large floating population, commonly dubbed "tin can tourists" that seeks a livelihood and looks upon station operation as a means to make a living.

Florida seeks men. What is wanted is men with capital, to buy land or to build industry. And the publicity seeking such men also attracts the less desirable class from the north and east. Sometimes these people buy roadside stands for fruit, candy, and soft drinks, and seek a gasoline tank and pump for entering the oil business.

Since the tourist season in Florida is in the winter months, many floaters come down to Florida in the fall. Others invade the state in the summer, hoping to get settled in some kind of retail business before the regular tourist season starts in the fall.

From the oil company's angle, the renting of controlled stations may be a means of increasing its sales. And the sales per station in Florida are small.

One executive estimates that the average drive-in station volume a month is 3000 gallons of gasoline and 30 gallons of motor oil. The dealer station that sells 1500 gallons of gasoline a month is a prize account.

With such a volume of gasoline and oil sales the operator of a company controlled station takes on other merchandise lines to help make a profit.

The reduction in accounting costs is another savings in renting out stations, another executive points out. The number of daily reports necessary from a company operated station is eliminated.

Another executive sums up the trend towards renting company controlled stations thus:

"We found that increasing the number of outlets would not increase our volume. So we have turned to increasing our volume with the same number of outlets."

Truck Delivers To Eleven More Stations

By equipping station gasoline storage tanks and truck hose with quick fitting couplings the Apex Oil Corp., Nashville, Tenn., has reduced its trucking costs. Quicker deliveries, through using the full diameter of the intake pipe, permits a truck to add 11 more service stations to its route.

The TRANSPORTATION of refined petroleum products to the market is a major problem with every refiner. El Dorado, centrally located on four trunk railroad lines, operating their own vast fleet of tank cars maintained in perfect rolling shape in their own modern car shop, solves the problem efficiently allowing a speedy turnover of stocks in many Jobber's hands. The excellent operating condition of El Dorado's tank cars insure railroad handling with no danger of set-outs for repairs, guaranteeing the TRANSPORTING of profit bearing merchandise to you on time.

The EL DORADO REFINING *Co.*

Established 1916

EL DORADO, KANSAS

A service station of the Charleston Oil Co. Note the side show windows. This station design is being used now by a major oil company. The station front was built similar to regular store fronts

Charleston Oil Co. Has Visible File On All Operating Details

By E. L. Barringer

N. P. N. STAFF WRITER

CHARLESTON, S. C.

IF THE Thornhill brothers want to know anything about their oil business, the Charleston Oil Co., they consult the record files in their office.

Here they have assembled statistics on all details of their business. The cards tell it all, from the rent paid Farmer Smith for the sign board erected in his cotton field to a description of the insurance carried on the bulk plant.

The statistics are classified into seven divisions. These are: service station lubrication customers; equipment; trucks; sign boards; employes; insurance policies; and real estate.

Each unit in these divisions is described fully on its own card in a visible filing system. An insurance policy, for instance, is described as to its policy number, from what company it was purchased; agent's name and address, dates in effect and the expiration, amount, premium, for what purpose purchased, and the equipment it covers.

On the visible edge of each card is sufficient data for identification. The insurance card shows the policy number, the insurance company's name, what it covers, and the type of insurance.

All record cards in each division are grouped together and filed alphabetically. The entire system occupies no more space than the top of a desk.

Records, however, are not a fetish with the Thornhill brothers. They are not kept for the sake of cluttering up office space, or keeping stenographers busy compiling information that will grow dusty through lack of use.

Each card carries just the vital detail of the business. The files are consulted frequently.

In fact the system had its inception when the brothers, T. W. and E. J. Thornhill, realized how little they knew about their company. They had a vague idea, of course, about their property. They knew in a general way about how many gasoline pumps they owned, the condition of storage tanks at stations, what insurance was carried, and similar details.

Somehow about the office specific data was filed. But it was not in such a form that information could be obtained quickly.

The making out of the tax return was one of the early reminders that there was a need for vital statistics in convenient form. So all details of the business were collected, and entered in the system. When the equipment division was reached several men obtained this data by combing the city for property of the Charleston Oil Co.

Now specific and correct information about any phase of

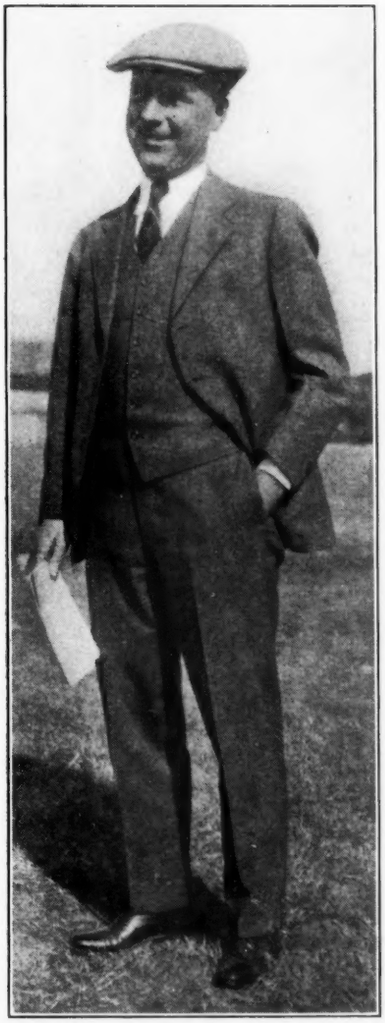
the business may be obtained quickly by consulting the filing system. All fishing expeditions through the regular files are eliminated.

The file on lubrication customers is used most frequently. The mailing of follow up cards on crankcase drains is timed by this file. It is used also by station managers in soliciting accounts.

The visible edge of these cards is dated. Colored tabs indicate the date for mailing out cards. Each day a stenographer checks down the date and takes off the customers to receive mailings.

Two weeks after the first drain a reminder card is sent out. The card has a picture of a speedometer with the query, "Does your speedometer read like this?" The mileage is computed by adding 500 miles to the reading when the previous drain was purchased.

The make of auto is filled in with a rubber stamp. This is



T. W. "Buddy" Thornhill

Cards Used in Charleston Oil Co.

◆ File System ◆

LOCATION OF PROPERTY:.....

IN THE NAME OF:.....

ASSESSED VALUE:.....

BOUGHT FROM:.....

MEASUREMENTS:.....

SOLD TO:.....

PAVING ASSESSMENTS:.....

TOTAL ASSESSMENT:.....

INTEREST FROM 8/8/25 @ 7%$.....

TAXES 1929

CITY TAX	SCHOOL TAX	TOTAL
58 mills	14¼ mills	72¼ mills
$.....	$.....	$.....

AMOUNT PD.....

RECEIPT NO.
DATED:

FOR $
PAID IN FULL

COUNTY TAX:
28 Mills $.....

REMARKS:.....

.....

.....

Real estate

POLICY NO. COMPANY

.....

AGENT ADDRESS

.....

DATE EXPIRATION AMOUNT PREMIUM

.....

COVERING FOR BENEFICIARY

.....

REMARKS:.....

POLICY NO. COMPANY COVERING FOR

Insurance policy record

(See next page)

SERIAL NO.	LOCATION	WHEN ERECTED
DATE OF LEASE	LEASED FROM	ADDRESS
EXPIRES	RENTAL	TERMS OF LEASE
COST OF SIGN		DESCRIPTION OF SIGN

REMARKS:

PAINTED	Description	COST	PAINTED	Description	COST

SERIAL NO. LOCATION KIND OF AD.

Description of sign boards

NAME:..... ADDRESS:.....
MARRIED:.....
WIFE OR HUSBAND:.....
CHILDREN:..... PHONE:.....
AGE:.....
STARTED WORK:..... SALARY:.....
STATION:.....
TIME OUT SICK:.....

Employes record card

TRUCK NO. MAKE DESCRIPTION CAPACITY YEAR MODEL

.....

MOTOR NO. SERIAL NO. TIRES DRIVER

.....

DATE PUR. AMOUNT DATE SOLD AMOUNT SOLD TO

LIABILITY POL.	DATE EXP.	FIRE POL.No.	DATE EXP.	STATE LIC. NO.	CITY LIC. NO.	DRIVER'S LIC. NO.	EXP.

REMARKS:

.....

TRUCK NO. MAKE DESCRIPTION CAPACITY YEAR MODEL

Automotive equipment
(See next page)

done to make the card more personal.

If the customer has not returned within seven days a second card is mailed. The third card goes out a week later.

The company has two safeguards against a station salesman unselling a customer by giving a sales talk on an oil brand different from that being used by the customer.

First, each follow up card notes the brand of oil purchased on the previous drain. It is hoped that the customer will ask for this brand when he returns.

Second, a duplicate of all sales tickets is retained by the station. The original is given to the customer, and another duplicate is sent to the main office. In case of doubt the station salesman can consult his sales slips.

If a station manager wants

E. J. Thornhill

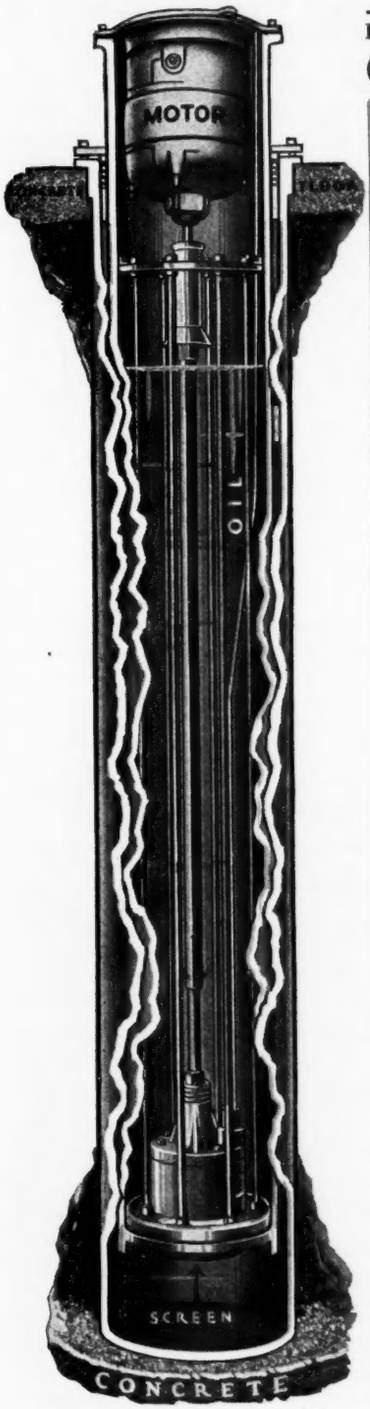
What's in a name?

The answer in pictures on this page is the answer of every knowing Lift buyer —

"EVERYTHING"

—the only complete line of automobile lifts—both Electric (Oildraulic) and Air (Airdraulic), if the name is

Oildraulic Lift Co.



Oildraulic Revolving Lift

FIRST, the principle that stands unequalled for operating economy—the Oildraulic Principle—simple, direct electrical connection—operating at one-third or less than ordinary lifts. Easiest to install. Produced in all standard types, plus EXTRA HEAVY DUTY TYPES, plus GARAGE AND INDUSTRIAL ELEVATORS of every capacity.

Next, a complete line of standard air compressor operated lifts, most economically priced, which have won distinction under the name

AIRDRAULIC Revolving Lifts

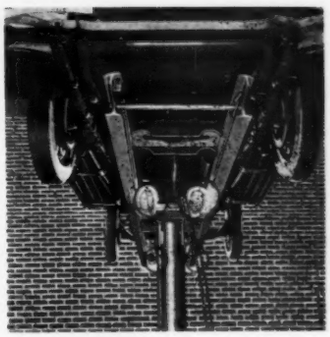
(AIR DRIVEN)

and an exclusive lighting fixture, the

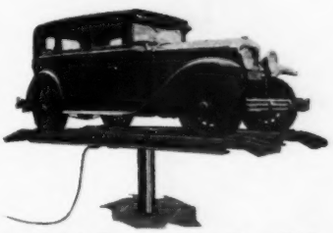
OILDRAULITE

which makes every Oildraulic and Airdraulic Lift a potential 24-hour a day money-maker. Pays for its small first cost the first month. Attach the OILDRAULITE to your Oildraulic or Airdraulic and double or triple your yearly service earnings.

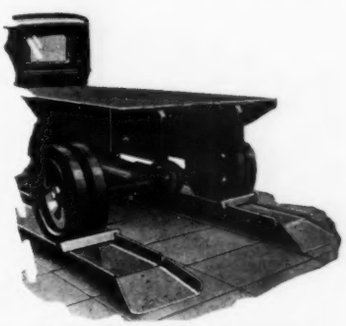
Self-centering Guides for free wheel types are another Oildraulic feature. Write for price.



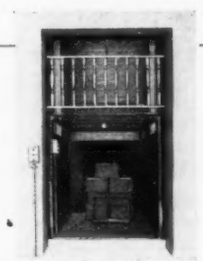
Super-Service Type, commonly called Free-Wheel. Oildraulic or Airdraulic. Showing Oildraulite lighting attachment which can be attached to any type of Oildraulic or Airdraulic Lift.



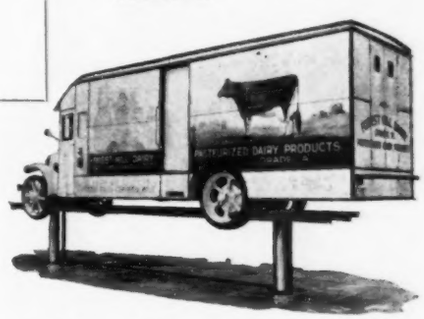
Channel Type, commonly called Drive-On. Oildraulic or Airdraulic.



Dual Wheel Type, commonly called Bulb Angle. Oildraulic or Airdraulic. Favored by oil marketers.



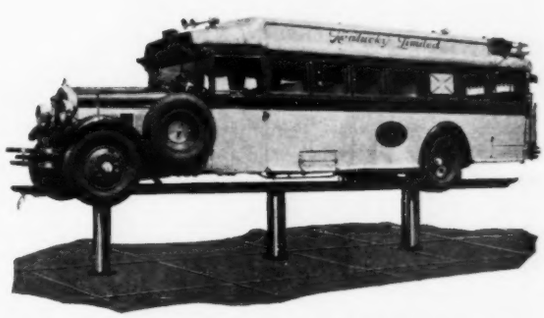
Garage Elevators — Oildraulic. Every design, capacity and speed.



Heavy Duty Type (Oildraulic) BT-2

Simplify Lift selection by depending on the name that means "EVERYTHING" in Lift design. Write Dept. NPN-18 for prices and particulars on the lift or lifts best suited to your needs. If interested in the Oildraulite specify type of Oildraulic or Airdraulic.

Fully Protected by U.S. and Foreign Patents and Patents Pending



Heavy Duty Type (Oildraulic) BT-3—Also utilized for double duty servicing of standard cars

Electrically Driven

The OILDRAULIC PRINCIPLE

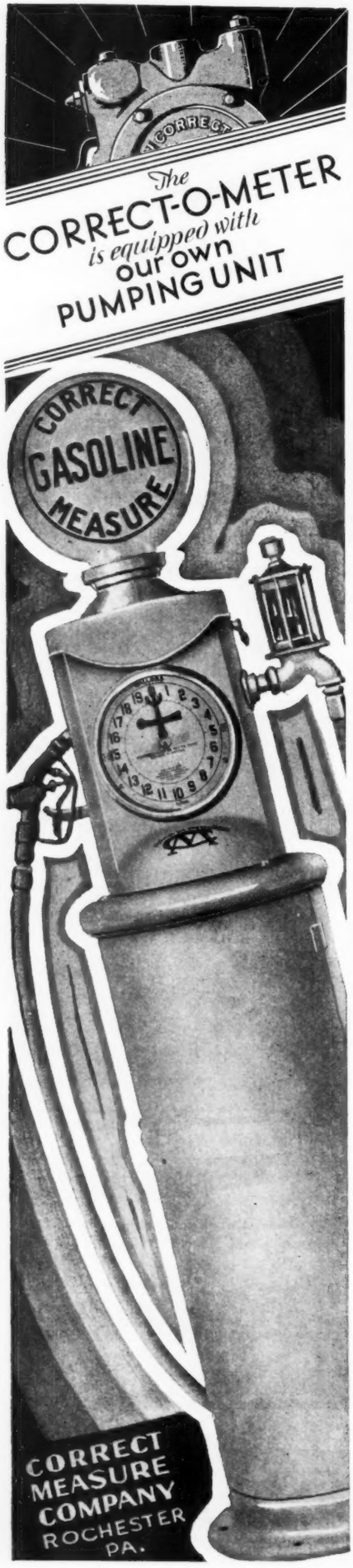
Operates from any standard voltage. No compressor—one power cost. No underground plumbing, no valve house. A unit within itself. Motor and rotary pump inside ram. Hydraulic oil operation. Pump removable without removing table and pulling of piston.

OILDRAULIC LIFT CO.

Memphis, Tenn.

Only complete Line of Automobile Revolving Lifts

Representatives and Complete Displays in all Principal Markets



information about his customers to use in making personal calls he may obtain it from the files. The visible edge of cards in the lubrication customer file carries the station designation in the right hand corner.

Through this designation the station manager can pick out his customers quickly.

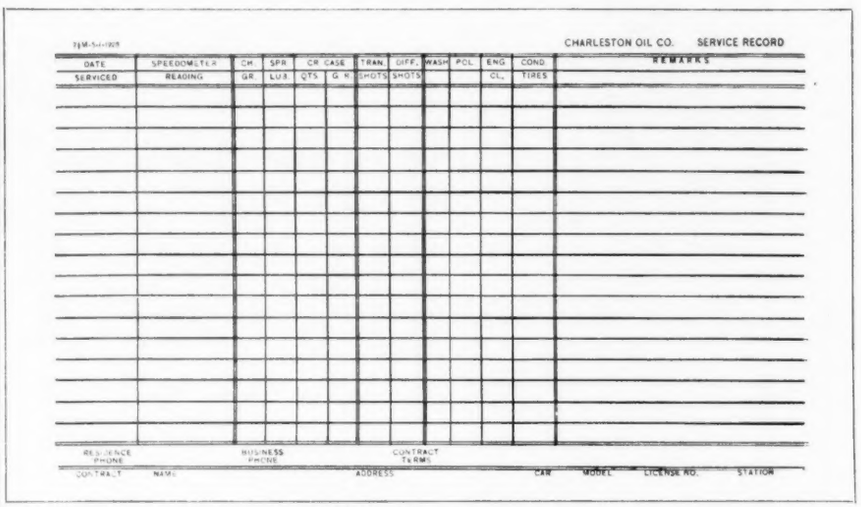
In addition to this filing system on the seven divisions of the company's business, there are two other statistical files in the office. One is a list of all automobiles registered in Charleston. The other is a list of the company's domestic fuel oil customers.

Each year the company obtains car registrations for the city. From this file names and addresses are transferred to addressing machine stencils, and from 15 to 20 pieces of direct mail are sent out over the year on this list.

Statistics on burner oil customers are necessary in directing deliveries. As the weather in Charleston is variable few customers desire the keep filled system. Even if they did elect to have the oil company watch the oil supply and replenish the tank when necessary it would be difficult to manage the system without gauging each individual tank.

Few customers, also, know off hand the capacity of their storage tanks. And in ordering over the telephone the customer may not specify when buckets should be brought for delivering the oil.

Consequently a file was set up for burner oil customers, showing the capacity of the tank, equipment needed for deliveries, and the grade of oil used. Before a load is taken from the bulk plant this file is consulted, and it is not necessary to depend upon hazy information given by the customer.

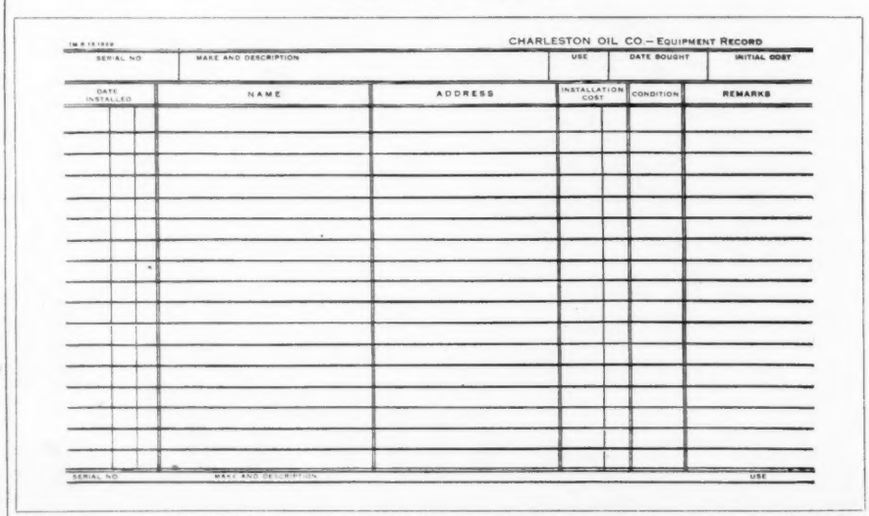

CHARLESTON OIL CO. SERVICE RECORD

DATE SERVICED	SPEEDOMETER READING	CH. GR.	SPR. LUB.	CR. CASE QTS.	CR. CASE G. R.	TRAN. SHOTS	DIFF. SHOTS	WASH	POL.	ENG. CL.	COND. TIRES	REMARKS

RESIDENCE PHONE — BUSINESS PHONE — CONTRACT TERMS

CONTRACT — NAME — ADDRESS — CAR — MODEL — LICENSE NO. — STATION

Lubrication customers


CHARLESTON OIL CO.—EQUIPMENT RECORD

SERIAL NO.	MAKE AND DESCRIPTION	USE	DATE BOUGHT	INITIAL COST

DATE INSTALLED	NAME	ADDRESS	INSTALLATION COST	CONDITION	REMARKS

SERIAL NO. — MAKE AND DESCRIPTION — USE

Equipment, note that the same card carries through the life of the equipment, any changes in location are noted on the same card

SPLIT ACCOUNTS

What We Learned About Them Why We Are Quitting Them

By C. S. Smith*

IF THE oil industry desires to continue the losing race of supplying free equipment, the split gasoline pump account is a made-to-order set-up. Everyone must admit that one of the major factors having to do with the present unsatisfactory situation has been the duplication of service stations and other gasoline outlets. This unscientific method of distribution has caused the buying public to lose the esteem in which the industry was once held.

If all the supplying companies embarked on a policy of discontinuing taking split pump accounts and strictly adhered to that policy, it would not entirely cure the economic evil of waste and loss in duplicating gasoline outlets but it would go very far toward correcting that situation which, admittedly, is a bad one.

Photo by Blank-Stoller, Inc.

C. S. Smith

I do not mean that there is not always room in this business for good, clean, aggressive dealers who carefully choose a line of branded gasolines on which they believe they can build up a substantial and profitable business. They will always prosper if they are real hustlers and sound merchandisers, putting all their aggressiveness and sales ability back of the line of gasolines they select, concentrating on that one company's brands and continuously selling the company to their customers on the quality of that one line of goods.

The split pump account is an ideal example of the course of least sales resistance. The salesman is told by the dealer that if he will add two or three pumps carrying the brand names of his company's gasolines, placing them alongside of the pumps of, say, two or three other companies, in the course of a few weeks the dealer will throw out the pumps of all competitor companies and then this salesman can have the account 100 per cent.

Instead of getting down to brass tacks and making an intelligent effort to sell the dealer on his company, on the quality of his goods, on the value of concentrating sales effort on one line, the salesman tells the dealer that he will take the question up with his office and try to get it to approve adding two or three pumps to the already four or five that are located on the dealer's premises. Very frequently, the salesman's high-powered efforts to get his company to approve placing additional pumps on split accounts results in the company's agreeing to it, and then we have a picture of a total investment of anywhere from $800 to $1,000 in gasoline equipment alone, whereas, an investment of $300 to $400 would give this dealer a full line of one company's gasoline to offer his trade, and which would entirely fill the needs of each one of his customers.

Another of the evils of split accounts is that the gallonage of each of the supplying companies is relatively small and does not justify the investment that each company has made in the pump equipment loaned to the dealer. The dealer's total gallonage is being split three or four ways. Then, too, he frequently pits one company against the others, stating that Company A has offered him some special inducement. Company B's salesman rushes to his sales manager and predicts that if Company A's concessions are not met, Company A's gasoline will be pushed in preference to the gasoline supplied by Company B, or that the account will be lost altogether.

Companies C and D are also drawn into the picture, and then all four companies enter into competition as to who can

*Vice-President, National Refining Co.

give away additional equipment or make additional concessions. By the time the dealer works on the salesman and the salesman works on his sales manager, the story loses nothing.

As against the split account compare the tremendous value of the 100 per cent account. In the latter case the dealer is well sold on the company and its brands of gasolines, motor oils and greases. The investment in pump equipment is minimum. There is no economic waste. If the dealer is wise in his choice, he has a line of gasolines that will meet every demand. The dealer and his organization can unite in their efforts to sell their customers and their prospects on one well-selected line of goods instead of scattering their efforts over three or four lines.

The success of the dealer depends upon permanent customers. They can only be secured by gaining and retaining their confidence. When the split account dealer says, "Here are a half dozen brands of gasoline —take your choice," is it not true that the customer's attitude is negative, not only on the products sold at that service station, but because of the fact that the dealer does not have enough confidence in one well-selected and advertised line of branded gasolines to handle that line exclusively.

Public acceptance of any brand of merchandise is built up by honest, persistent selling effort, quality service and then quality performance. A recent survey made indicates that the 100 per cent dealer has a more substantial and regular clientele than the split account dealer is able to obtain.

And, last but not least, the 100 per cent account usually is or should be a controlled account which, above everything else, is necessary if we expect to reach stabilization in the retail sale and distribution of gasoline.

Those favoring split gasoline pump accounts argue that in time the dealer will handle "our goods exclusively," but the facts do not substantiate this claim, and we have learned by experience that the time, effort and salesmanship required to line up an account on 100 per cent basis, placing it in control, having an assured gallonage over a period of time, pays big dividends in terms of satisfied dealers and satisfied dealer customers, satisfactory gallonage and common sense investment in equipment.

NEW STATIONS BUILDING

Note: Material used in this column is taken principally from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Service Stations

Cape Cod, Mass.—Cape Cod Oil Co., Hyannis, Mass.

Lawrence, Mass.—Haffner's Service Station, 69 Parker St., Lawrence.

Columbia, S. C.—Standard Oil Co. of New Jersey, 26 Broadway, New York City.

Lawrence, Mass.—Haffner's Service Station, 69 Parker St., Lawrence.

St. Paul, Minn.—Hamm Realty Co., 321 Hamm Bldg.

Elwood, Ind.—C. E. Minear, Warsaw, Ind.

Madison, Ind.—George Distel.

Minneapolis, Minn.—Crescent Oil Co., 1018-30 S. 2nd St.

Moline, Ill.—L. O. Jahns, 520 19th St.

Watertown, S. D.—Carl Glatz.

St. Paul, Minn.—Foley Realty & Service Co., 209 Gilfillan Bldg.

Moorhead, Minn.—Anton Jensen, 827 6th St., N. Fargo.

Grinnell, Ia.—Grinnell Oil Co.

Clinton, Ia.—Shell Petroleum Co., Shell Bldg., St. Louis, Mo.

Clinton, Ia.—J. L. Kramer, Camanche Ave.-22nd Place.

Beaver Dam, Wis.—H. & P. Investment Co.

Sioux City, Ia.—Charles Phillips, 3221 Jones Ave.

Shenandoah, Ia.—S. E. Gallup.

Spencer, Ia.—Champlin Refining Co., Enid, Okla.

Merrill, Wis.—Henry Rostal, Grand Ave. and Division St.

Estherville, Ia.—The Phillips Petroleum Co., Bartlesville, Okla.

Eagle Grove, Ia.—McCoy Oil Co.

Manchester, Ia.—Continental Oil Co., Ponca City, Okla.

Oskaloosa, Ia.—Continental Oil Co., Ponca City, Okla.

Springfield, O.—Dr. S. E. Greenawalt, Greenawalt Realty Co.

Yonkers, N. Y. — Theodore Steenwerth, Cedar St.

Wichita, Kan.—Goodrich-Silvertown, Inc., Akron, O.

Auburn, N. Y.—Z. & M. Oil Co., 65 Mitchell St., Norwich, N. Y.

Fredericksburg, Va.—Gulf Refining Co., Frick Bldg. Annex, Pittsburgh, Pa.

Lakeview, N. Y.—Eleanor Stumpf, Graham and North Village Ave.

Glen Ellyn, Ill.—Mr. Wagoner, Main St.

Ypsilanti, Mich.—Arrow Oil Co., 800 Cedar St., Lansing, Mich.

Hartford City, Ind. — Thomas A. Hartley, W. Washington and W. Water Sts.

Wilmette, Ill.—Keystone Oil Co., 332 S. Michigan Ave., Chicago, Ill.

Dallas, Tex.—Simms Oil Co., 1007 Magnolia Bldg., Dallas, Tex.

Ft. Wayne, Ind.—Texas Co., Chrysler Bldg., New York.

Mosinee, Wis.—Winona Oil Co.

White Plains, N. Y.—Berkley-Crane Co.

Minneapolis, Minn.—T. L. O'Hern, 417 19th Ave.

Wellman, Ia.—Mr. Al Miller.

Davenport, Ia.—Continental Oil Co., Ponca City, Okla.

Hatton, N. D.—Hatton Co-operative Oil Co.

Minneapolis, Minn.—N. S. Hoogner, 3415 E. 25th St.

Mankato, Minn.—Fred A. Schultz, 502 N. 2nd St.

Waterloo, Ia.—Continental Oil Co., Ponca City, Okla.

Fond Du Lac, Wis.—Harcom Fuel Co.

Storia, Wis.—Gurney Gas Co.

Park Ridge, Ill.—George L. Blankenheim, 4467 Milwaukee Ave., Chicago.

Milwaukee, Wis.—Goodrich Silvertown Inc., 441 Jackson St.

Mt. Vernon, Md.—Great Northern Utilities Co.

Chicago Heights, Ill.—Arthur Lane, Bloomington, Ill.

Beardstown, Ill.—Phillips Oil Co.

Mt. Vernon, Ill.—Herman Ganson.

Montpelier, Ind.—William Jackson.

Elizabethtown, Ky. — Mid-Continent Petroleum Co., Tulsa, Okla.

Monmouth, Ill.—Geo. A. Howard, Library Bldg.

Aitkin, Minn.—George H. Crosby, Jr., 2nd Ave. and Minnesota.

Madison, S. D.—Carl Glatz.

Madison, Wis.—William Winkler.

Lapeer, Mich.—Shapiro Bros.

Lafayette, Ind. — Paramount Petroleum Co.

Waterloo, Ia. — Phillips Petroleum Co., Bartlesville, Okla.

Willmar, Minn.—Northwest Oil Co.

The Neptune Meter Co., 50 E. 42nd St., New York, N. Y., has added the Neptune Red Seal Meter to its line of gasoline and oil meters gasoline pumps at service stations. It is piston-type and is based on a metering principle which has been used successfully for over 30 years in measuring other liquids, the company says.

It is extremely simple, having only one moving working part in its measuring mechanism. Valves, piston rings and crankshafts are eliminated and accuracy over a wide range of flows is provided.

ON THE LAZY BENCH

For the Blind

A Hebrew storekeeper's show window, to the surprise of his brethren, was suddenly adorned with a gorgeous new blind.

Aaron: "Nice blind you have."

Isaac: "Yes, Aaron."

Aaron: "Who paid for it, Isaac?"

Isaac: "The customers paid, Aaron."

Aaron: "What, the customers paid for it?"

Isaac: "Yes, Aaron, I put a little box on my counter, and wrote on it, 'For the Blind,' and they paid for it."

—The Gas Line
West Penn Oil Co.

* * *

Going Down Fast

"And how is your husband getting on with his reducing exercises, Mrs. Neuquids?"

"You'd be surprised—that battleship 'e 'ad tattooed on 'is chest is now only a row boat."

—The Diamond
Mid-Continent Petroleum Corp.

* * *

"Did McPherson buy the filling station?"

"Guess he did—the free air sign is down."

—Independent Topics

* * *

Here lies the body of Julius Jay,
Who died defending his right of way.
He fought for his right as he drove along,
But he's just as dead as if he'd been wrong.

—The Diamond
Mid-Continent Petroleum Corp.

* * *

A man was spending his vacation at a camp. One day he asked a farmer who resided nearby, what he did with such an enormous peach crop. The farmer replied, "Well, we eat what we can, and what we can't we can."

"We do the same thing, brother," said the questioner. "We sell what we can sell, and what we can't sell we cancel."

—The Booster
Standard Gasoline Co.

Working Right Up

Jake: "Always ahead in everything, isn't he?"

Pete: "Yes—if a girl twists her ankle, he rubs her knee."

—The Diamond
Mid-Continent Petroleum Corp.

* * *

A certain family man, striving to shake an indolent alarm clock into action, dislodged from its interior a defunct cockroach, whereupon his infant prodigy piped up: "No wonder it wouldn't go, dad. The engineer is dead."

—Union Oil Bulletin

* * *

Prof.: "Give me a definition of oboe."

Stude: "It's the ill woodwind that nobody blows good."—Drexerd.

—The Gas Line
West Penn Oil Co.

* * *

There's no telling how long Methuselah might have lived if he had had his appendix, teeth and tonsils out, used the right brand of tooth paste and smoked coughless cigarettes.

—Magnolia Oil News
Magnolia Petroleum Co.

* * *

"Why didn't you answer my letter?"

"I didn't get it."

"You didn't get it?"

"No, and besides, I didn't like some of the things you said in it."

—The Booster
Standard Gasoline Co.

* * *

Customer: "I want some powder to kill cockroaches."

Clerk: "Will you take it with you?"

Customer: "No, I'll have the cockroaches call and you can rub it on their little tummies."

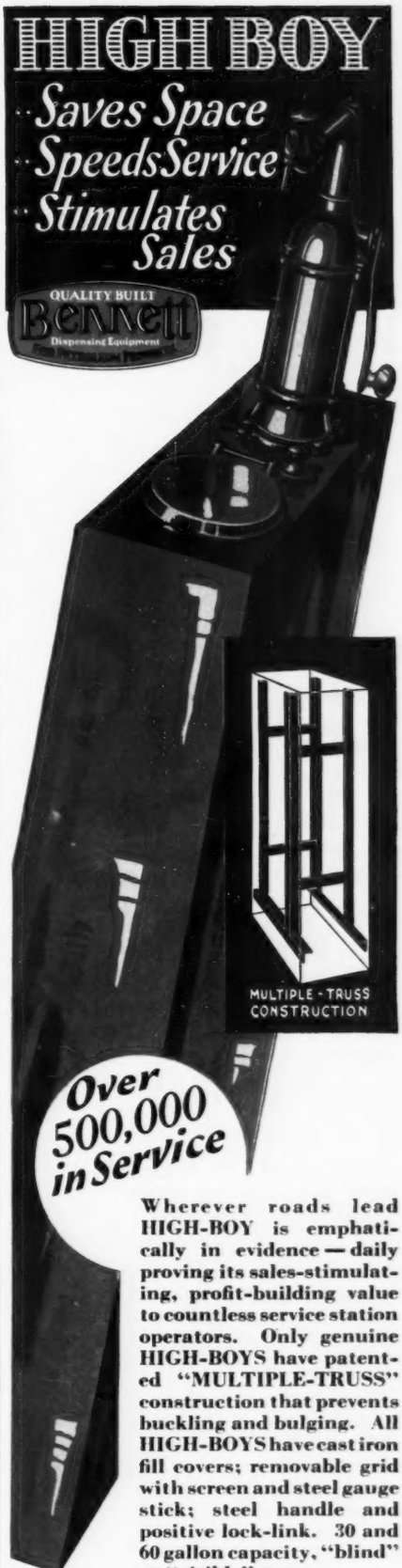
—The Diamond
Mid-Continent Petroleum Corp.

* * *

Try This One

A certain husband, whose wife uses his razor to open cans, has discovered that his wife's large powder puff makes an elegant shoe brush.

—The Gas Line
West Penn Oil Co.



Wherever roads lead HIGH-BOY is emphatically in evidence — daily proving its sales-stimulating, profit-building value to countless service station operators. Only genuine HIGH-BOYS have patented "MULTIPLE-TRUSS" construction that prevents buckling and bulging. All HIGH-BOYS have cast iron fill covers; removable grid with screen and steel gauge stick; steel handle and positive lock-link. 30 and 60 gallon capacity, "blind" or "visible" types.

Write for
HIGH-BOY *Bulletin*

SERVICE STATION EQUIPMENT CO.
Main Office: CONSHOHOCKEN, PA.
(Suburb of Philadelphia)

Branches, Warehouses and Organized Service Coast to Coast — U. S. and Canada. Pacific Coast — Rheem Mfg. Co., Division of Service Station Equipment Co. Foreign Division — 32 Broadway, New York, N. Y

Merchandising and Jobbing Ideas Marketers Are Practising

By E. L. Barringer
N. P. N. STAFF WRITER

Major Company Promotes On Merit Basis

ONE of the major oil companies has backed off and taken a good look at this business of promoting employes. The result is a new policy—to base promotions on ability. To fill the job ahead with the right man.

A vice-president of the company did some investigating on the side. He found a sentiment pretty well established that employes felt they would automatically come into a good job after 5, 10, or 12 years service. In fact some employes had been told this by their immediate superiors.

To break up this notion the company has put its promotion policy on a basis of finding the right man for the job.

Whenever there is a vacancy a recommendation is made, inspected by the personnel department in the home office, and before the man is placed on the job he is given a course in oil education.

Take the case of a service station employe recommended for a salesman's place. If the application looks all right the attendant is shifted over to drive a tankwagon for a few weeks. Then he is sent to the home office for some training in salesmanship. Not principles and theory, but sales points are illustrated through practice. The man is taught how to approach a customer, for instance, by working on other men in the class.

Then the class runs down to a refinery. Here processes are studied, the chemists assist in the training, and in the end the men have a working knowledge of how crude oil is converted into the finished product.

This company also has broken down the barrier between its sales divisions. The old policy was not to shift men. Now a given job is filled by the man best suited for the job irrespective of his division.

* * *

Nickname Identifies Oil Company Stations

As motorists approach Charleston, S. C., they see sign boards along the highway advertising the "Chasonoil" stations. In the city the same word will be found at stations of the Charleston Oil Co. on signs hung from the canopy or along the drives.

The word is a corruption of the company's name. Negroes started it by slurring the name Charleston Oil Co. into "Chasonoil." The company took it up until now it is just an old Charleston custom. The nickname has more meaning than the formal name, and it appears on all the company's property.

* * *

Hotel Keys Advertise One-Stop Station

Hotel room keys are coming into their own as advertising media. An Atlanta hotel carries two advertisements on its keys. One is for a drug store, the other for Firestone's one-stop service station.

No Report on the Cash

ROBBERS who stole several hundred dollars worth of checks from the Anderson Oil Co., Anderson, S. C. recently, returned them by mail.

No report of the $225 in cash taken at the same time, however, was made in the letter.

Southern Grease Plant Makes Tractor Lubes

The grease plant of the Georgia-Carolina Oil Co., Macon, Ga., specializes on tractor transmission and differential lubricants. At the Macon warehouse there are two compounding kettles. Some greases are sold direct to farmers, but the bulk of the lubricant goes to cities and counties for road equipment.

In Georgia many cities and counties have their own road equipment, pulled by tractors or trucks. All maintenance work is done at the highway camps, including lubrication, by mechanics.

In addition to Georgia, the company markets its greases also in the Carolinas, Florida, Alabama, and Mississippi. The average county in these states will have at least three tractors, and the larger ones as many as 15.

The Georgia-Carolina Oil Co. also distributes Quaker State motor oil over most of Georgia. It handles its own oil brands under the trade name of G. C. and Texas.

* * *

Pulling Oil Equipment Brings In The Orders

The dealer who keeps up his signs, yet will not carry a stock of merchandise, is a problem for oil jobbers. The Georgia-Carolina Oil Co., Quaker State motor oil distributor in Georgia, has a method for beating the dealer at his own game.

About every four weeks this jobber's salesmen call on their customers. If the dealer has no stock, and refuses to buy, the salesmen tells him that he will have the company truck stop to pick up the signs and tanks. The order goes in, and when the truck stops the dealer usually decides he wants to buy.

Crude Production by Fields

By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A. P. I.

PRODUCTION SUMMARY

	March 21	March 14
Production east of Rockies	1,736,150	1,662,650
Increase		73,500
Total production in U. S.	2,268,050	2,190,550
Increase		77,500
Crude oil imports	146,570	128,145
Increase		18,425
Total new crude supply	2,414,620	2,318,695
Increase		95,925

OKLAHOMA

	Mar. 21	Mar. 14
Allen Dome	22,500	14,850
Asher	700	700
Asher, West	7,650	6,150
Blackwell	2,950	2,850
Bowlegs	6,400	9,250
Braman	1,950	1,950
Bristow-Slick	12,750	12,750
Burbank	13,300	13,650
Carr City	13,850	10,100
Cromwell	4,850	4,850
Cushing	12,650	12,600
Davenport	950	900
Duncan District	7,000	7,450
Earlsboro	34,300	18,200
Earlsboro, East	10,750	17,550
Earlsboro, So.	6,450	7,100
Fox	1,050	1,000
Garber	3,950	3,950
Graham	3,000	3,000
Healdton	10,600	10,600
Hewitt	6,100	6,050
Hubbard	950	950
Konawa	13,650	12,650
Little River	12,850	15,700
Little River, E.	6,800	7,250
Logan County	4,000	4,050
Maud	4,650	2,650
Mission	2,100	4,300
Oklahoma City	149,200	132,800
Okmulgee, No.	9,150	8,850
Okmulgee, So.	5,250	5,350
Osage (Outside Burbank)	22,700	23,000
Papoose	2,000	2,000
Pearson	500	500
Sasakwa	2,200	2,450
St. Louis	38,050	24,350
Scholem-Alechem	13,100	13,700
Searight	7,650	5,750
Seminole	26,500	15,800
Seminole, East	3,050	2,300
Thomas	850	600
Tonkawa	5,200	5,150
Wewoka	9,500	7,600
Yale-Jennings	6,200	7,150
Others	42,300	39,400
Total, Okla.	572,100	509,800
Increase		62,300

KANSAS

Augusta-Fox Bush	3,000	3,000
Churchill	3,550	3,550
El Dorado-Towanda	12,900	12,950
Florence-Covert	650	700
Greenwood Co.	16,800	16,700
Oxford	2,300	2,300
Peabody-Elbing	1,700	1,700
Rainbow Bend	1,450	1,500
Russell	3,250	3,200
Sedgwick Co.	18,000	19,500
Voshell	19,200	19,300
Others	27,000	27,000
Total, Kansas	109,800	111,400
Decrease		1,600

NORTH LOUISIANA

Caddo, light	7,850	7,800
Caddo, heavy	2,750	2,800
Cotton Valley	1,800	18,00
De Soto and Red River	2,700	2,700
Haynesville	5,700	5,700
Holly	650	750
Homer	3,350	3,400
Sarepta-Carterville	1,450	1,500
Urania	4,600	4,600
Zwolle	7,600	7,950
Others	1,500	1,500
Total N. La.	39,950	40,500
Decrease		550

ARKANSAS

Champagnolle	3,100	3,200
El Dorado	3,800	3,800
Lisbon	750	800
Nevada	1,000	1,000
Smackover, light	4,300	4,400
Smackover, heavy	32,100	32,600
Stephens	850	850
Others	1,400	1,750
Total, Ark.	47,300	48,400
Decrease		1,100

ROCKY MOUNTAIN

Wyoming

Big Muddy	1,950	1,950
Elk Basin	700	750
Grass Creek	2,050	2,100
Labarge	1,600	1,700
Lance Creek	200	200
Lost Soldier	3,200	3,750
Oregon Basin	1,500	1,550
Rock River	2,000	2,000
Salt Creek	27,500	24,550
Others	3,250	3,250
Total, Wyo.	43,950	41,800
Increase		2,150

Montana

Cat Creek	1,100	1,100
Pondera	1,900	1,700
Sunburst	4,250	4,200
Others	1,400	1,400
Total, Montana	8,650	8,400
Increase		250

Colorado

Florence	400	350
Fort Collins	1,050	1,000
Moffat (Craig)	1,000	1,050
Others	1,800	1,750
Total, Colo.	4,250	4,150
Increase		100

New Mexico

Artesia	600	600
Balance Eddy County	200	150
Hobbs High	32,100	30,600
Balance Lea County	6,300	6,950
Hogback	400	450
Rattlesnake	1,150	1,050
Table Mesa	100	100
Total, N. M.	40,850	39,900
Increase		950
Total, Rocky Mountain	97,700	94,250
Increase		3,450

TEXAS (OUTSIDE GULF COAST)

Panhandle District

	Mar. 21	Mar. 14
Carson County	3,900	3,500
Gray County	39,600	39,600
Hutchinson Co.	9,400	8,700
Wheeler Co.	500	300
Others	300	250
Total, Panhandle Tex.	53,700	52,350
Increase		1,350

North Texas

Archer County	11,800	11,900
Burkburnett	7,200	7,200
Electra	8,900	8,900
Iowa Park and K. M. A.	3,700	4,700
Montague-Cooke	5,650	5,700
Wilbarger	10,500	10,400
Young Co., No.	9,200	9,300
Others	1,350	1,350
Total, N. Tex.	58,300	59,450
Decrease		1,150

West Central Texas

Brown County	4,100	4,100
Callahan Co.	2,000	2,000
Coleman Co.	1,100	1,100
Eastland-Desdemona	4,000	4,000
Jack County	900	900
Palo Pinto Co.	400	400
Shackleford Co.	4,000	4,000
Stephens Co.	4,600	4,600
Throckmorton Co.	400	400
Young Co., So.	2,600	2,600
Others	1,200	1,200
Total, West Cent. Texas	25,300	25,300

West Texas

Crane and Upton Co.'s	24,400	24,600
Crockett Co.	1,800	1,800
Ector Co.	7,300	5,800
Howard Co.	22,500	22,050
Jones Co.	1,200	1,200
Mitchell and Scurry Co.'s	2,000	2,000
Reagan Co.	26,450	25,650
Winkler Co.	47,800	48,700
Yates	89,850	88,850
Balance Pecos Co.	4,100	3,400
Others	7,250	7,300
Total W. Tex.	234,650	231,350
Increase		3,300

East Central Texas

Boggy Creek	2,350	2,300
Corsicana-Powell	4,800	4,800
Currie	300	300
Mexia	3,600	3,750
Nigger Creek	150	150
Richland	100	100
Rusk County: Joiner field	40,350	45,800
Kilgore	36,850	29,750
Gregg Co., Longview	14,350	7,150
Van Zandt	35,500	34,900
Wortham	500	600
Others	50	50
Total East Cent. Tex.	138,900	129,650
Increase		9,250

Southwest Texas

Chapman		
Abbott	4,800	5,000
Dale	250	250
Darst Creek	28,500	29,550
Laredo District	14,500	13,700
Luling	9,400	9,450
Lytton Springs	700	750
Salt Flat	14,650	15,000
Somerset	1,300	1,300
Others	550	600
Total, So. W. Texas	74,650	75,600
Decrease		950
Total, Texas (Outside Gulf Coast)	585,500	573,700
Increase		11,800

GULF COAST

Coastal Texas

Barbers Hill	18,800	19,500
Batson	1,000	1,000
Big Creek	2,650	2,600
Blue Ridge	1,150	1,300
Boling	750	800
Damon Mound	700	600
Esperson	2,550	2,400
Fannett	500	500
Goose Creek	4,400	4,550
Hankamar	2,300	2,300
Hull	6,100	6,200
Humble	9,150	8,950
Moss Bluff	300	400
North Dayton	600	1,050
Orange County	1,900	1,800
Orchard	1,700	1,900
Pettus	7,100	7,000
Pierce Junc.	10,100	9,900
Port Neches	1,450	1,500
Raccoon Bend	9,400	9,200
Refugio Co.	28,600	31,250
Saratoga	950	900
Somerville	2,100	2,300
Sour Lake	2,050	2,000
South Liberty	2,400	2,600
Spindletop	10,800	11,450
Sugarland	11,800	11,950
West Columbia	4,300	4,250
Others	1,900	2,200
Total Coastal Texas	147,500	152,350
Decrease		4,850

Coastal Louisiana

Edgerly	600	700
Evangeline	700	650
Hackberry, E.	2,150	2,150
Hackberry, Old	800	800
Lake Barre	4,250	2,700
Lockport	4,700	4,800
Port Barre	1,700	1,800
Sulphur Dome	1,500	1,700
Vinton	6,000	6,500
White Castle	1,000	1,000
Others	3,350	3,300
Total, Coastal Louisiana	26,750	26,100
Increase		650
Total, Gulf Coast	174,250	178,450
Decrease		4,200

CALIFORNIA

Domingues	12,000	11,700
Elwood-Goleta	38,500	32,200
Huntington Beach	21,600	22,600
Inglewood	15,200	15,400
Kettleman Hills	25,000	26,600
Long Beach	90,600	90,800
Midway-Sunset	52,300	52,300
Playa del Rey	30,300	29,700
Santa Fe Spgs.	71,500	71,500
Seal Beach	16,400	16,300
Ventura Ave.	45,000	45,300
Others	113,500	113,500
Total, Calif.	531,900	527,900
Increase		4,000

EASTERN

(Not including Michigan)	101,000	97,500
Increase		3,500

MICHIGAN

Mt. Pleasant	6,650	6,750
Muskegon	1,750	1,750
Saginaw	150	150
Total, Mich.	8,550	8,650
Decrease		100

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended March 20 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended March 20
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	94,500	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	61,751 + 7.0	91,723 + 0.8	63,772 — 4.3	34,366 + 41.3	43,274 + 9.0	294,886 + 5.6
Da. Av. Other Oil	5,445 — 9.7	2,472 — 43.9	2,906 + 2.6	....	17,648 + 11.5	28,471 — 3.7
GASOLINE—Gallons						
Stocks, March 13	29,207,000	44,893,000	38,468,000	12,721,000	6,784,000	132,073,000
Prod. 3-13 to 3-20	12,063,000 + 8.0	16,435,000 + 12.7	9,652,000 + 6.6	2,825,000 + 25.2	5,663,000 + 10.7	46,638,000 +10.6
Ship. 3-13 to 3-20	11,734,000 + 16.7	12,998,000 — 4.3	11,217,000 + 42.6	3,098,000 + 1.6	5,858,000 + 2.2	44,905,000 +11.4
Stocks, March 20	29,536,000 + 1.1	48,330,000 + 7.7	36,903,000 — 4.1	12,448,000 — 2.1	6,589,000 — 2.9	133,806,000 + 1.3
Ratio Sales to Prod.	97.3%	79.1%	116.2%	109.7%	103.4%	95.3%
KEROSINE—Gallons						
Stocks, March 13	8,953,000	15,904,000	2,632,000	8,000	214,000	27,711,000
Prod. 3-13 to 3-20	2,080,000 + 2.8	2,111,000 + 4.6	1,283,000 — 15.6	....	296,000 + 66.2	5,770,000 + 0.5
Ship. 3-13 to 3-20	2,654,000 + 19.7	1,739,000 + 7.5	1,404,000 + 14.3	6,000 +500.0	336,000 — 16.6	6,139,000 + 12.3
Stocks, March 20	8,379,000 — 6.4	16,276,000 + 2.3	251,000 — 4.6	2,000 — 75.0	174,000 — 18.7	27,342,000 — 1.3
Ratio Sales to Prod.	127.6%	82.4%	109.4%	.....	113.5%	106.4%
STOVE DISTILLATE—Gallons						
Stocks, March 13	3,401,000	4,722,000	744,000	108,000	16,000	8,991,000
Prod. 3-13 to 3-20	555,000 + 2.8	545,000 — 45.8	351,000 + 5.1	37,000 +146.7	80,000 +110.5	1,568,000 — 18.9
Ship. 3-13 to 3-20	633,000 + 17.2	471,000 — 57.2	518,000 + 49.7	66,000 +312.5	72,000 + 84.6	1,760,000 — 13.8
Stocks, March 20	3,323,000 — 2.3	4,796,000 + 1.6	577,000 — 22.4	79,000 — 26.9	24,000 + 50.0	8,799,000 — 2.1
Ratio Sales to Prod.	114.1%	86.4%	147.6%	178.4%	90.0%	112.2%
GAS OIL—Gallons						
Stocks, March 13	3,170,000	27,718,000	2,687,000	4,498,000	5,344,000	43,417,000
Prod. 3-13 to 3-20	612,000 — 30.9	596,000 — 46.0	727,000 + 0.8	528,000 + 48.3	2,194,000 — 1.5	4,657,000 — 12.0
Ship. 3-13 to 3-20	584,000 — 22.3	1,481,000 + 11.8	888,000 +106.0	859,000 + 13.3	2,404,000 + 18.9	6,216,000 + 17.5
Stocks, March 20	3,198,000 + 0.9	26,833,000 — 3.2	2,526,000 — 6.0	4,167,000 — 7.4	5,134,000 — 3.9	41,858,000 — 3.6
Ratio Sales to Prod.	95.4%	248.5%	122.1%	162.7%	109.6%	133.5%
FUEL OIL—Gallons						
Stocks, March 13	8,949,000	49,543,000	62,149,000	11,858,000	21,730,000	154,229,000
Prod. 3-13 to 3-20	4,746,000 + 19.3	5,108,000 + 12.2	6,142,000 — 9.3	5,071,000 + 55.4	4,907,000 + 4.9	25,974,000 +11.8
Ship. 3-13 to 3-20	4,286,000 + 26.2	4,390,000 — 20.0	6,852,000 — 8.0	4,010,000 — 12.7	4,354,000 — 24.9	23,892,000 —10.6
Stocks, March 20	9,409,000 + 5.1	50,261,000 + 1.4	61,439,000 — 1.1	12,919,000 + 8.9	22,283,000 + 2.5	156,311,000 + 1.3
Ratio Sales to Prod.	90.3%	85.9%	111.6%	79.1%	88.7%	92.0%

Gasoline Produced by Various Methods, Week Ended March 20

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,702,000	55.6	9,970,000	60.7	6,190,000	64.1	2,697,000	95.5	2,252,000	39.8	27,811,000	59.6
Cracked	4,410,000	36.6	5,193,000	31.6	2,605,000	27.0	....		2,337,000	41.3	14,545,000	31.2
Natural	951,000	7.8	1,272,000	7.7	857,000	8.9	128,000	4.5	1,074,000	18.9	4,282,000	9.2
Total	12,063,000		16,435,000		9,652,000		2,825,000		5,663,000		46,638,000	

+ or — columns are % change over previous week.

Gasoline Stocks Rise as Crude Runs Are Increased

Staff Special—By Telegraph

TULSA, March 24

RUNS of crude oil at Mid-Continent refineries that report their operating statistics weekly to NATIONAL PETROLEUM NEWS, averaged 15,700 barrels a day more in the week ended March 20 than in the preceding week. There were increases in all districts, except North Texas.

Gasoline production was 4,460,000 gallons more than in the preceding week. Even the North Texas district increased gasoline production. Production was only 843,000 gallons less than production a year before although crude runs were 57,180 barrels a day less than a year before.

Gasoline shipments were 4,600,000 gallons more than the week before. Each district except Oklahoma increased shipments with the largest gain in North Texas. However, stocks increased 1,700,000 gallons. Only the Kansas and Oklahoma districts failed to draw on stocks.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 20. Change in stocks figures from Feb. 20.

GASOLINE

	Gallons
Production	171,705,000
Shipments	169,985,000
Net change in stocks	+1,720,000
Ratio sales to production	99.0%

KEROSINE

Production	22,284,000
Shipments	22,007,000
Net change in stocks	+277,000
Ratio sales to production	98.8%

STOVE DISTILLATE

Production	7,255,000
Shipments	7,763,000
Net change in stocks	—508,000
Ratio sales to production	107.0%

GAS OIL

Production	21,046,000
Shipments	24,565,000
Net change in stocks	—3,519,000
Ratio sales to production	116.7%

FUEL OIL

Production	96,661,000
Shipments	99,566,000
Net change in stocks	—2,905,000
Ratio sales to production	103.0%

Kerosine production was steady. With a gain of 600,000 gallons in shipments, stocks were lowered 400,000 gallons. Distillate output was lower in line with smaller demand and stocks were reduced 200,000 gallons. Gas oil stocks were reduced 1,500,000 gallons. Fuel oil stocks increased 2,000,000 gallons.

Pipeline-Truck Rates Made by Phillips

TULSA, March 21.—Coincident with the filing March 16 of the Phillips Petroleum Co.'s gasoline pipeline tariff came the announcement that the company had filled the 8-inch line from the Borger, Tex., refinery to the Wichita, Kan., terminal with gasoline. It is now making deliveries from that point to its stations and customers in the vicinity of Wichita.

The line was washed two or three weeks ago with a charge of water before the gasoline was started on its journey of 275 miles or more. The line was estimated to have required in the neighborhood of 90,000 barrels or almost 4,000,000 gallons. That gasoline was drawn from the storage of approximately 300,000 barrels assigned several weeks ago to the pipeline division. The refinery division for some months has been building up this storage for the line.

The pipeline tariff is similar to that of the Great Lakes Pipe Line Co.'s tariff, except that the Phillips company included rates for truckage of gasoline from terminals to adjacent cities. The tariff publishes three groups of truck rates, ranging from 28 to 34 cents a barrel, or approximately 10 to 12.5 cents per 100 lbs.

The pipeline-truck rates to a given destination are the same as the all-rail rates from Borger, Tex., to the same point.

The Phillips company, it was understood, had not as yet established a fleet of trucks from the Wichita terminal, and in view of the recent move of Western Trunk Line and Southwestern railroads* to reduce materially the short haul rates on gasoline and kerosine, it was indicated no fleet would be put into operation in the near future.

The truck rates as published are considerably higher than those proposed by the railroads in their efforts to retain the short haul tonnage.

The request of the Santa Fe railroad, filed with the Southwestern Freight Bureau, for rates similar to those proposed by Western Trunk Lines, had not been docketed March 21. The chairman of the bureau was understood to have delayed docketing the request for hearing pending receipt of further information from the Santa Fe.

*NATIONAL PETROLEUM NEWS, March 18, 1931 issue, Page 41.

PENNSYLVANIA
MOTOR OILS
Buyers Specifications or Ours
Pennsylvania Quality at
Lowest Prices in Years
Write or Wire
INDUSTRIAL OIL CORP.
Warren, Pa.

SELLING NEEDED ACCESSORIES IS A SERVICE TOO . . . AND A SOURCE OF PROFIT BESIDES

Schrader "Reddy Seller" Cabinet
FREE
with this Special Gas Station Assortment
No. 8006

100 No. 4000 Valve Cores in metal boxes.
50 No. 880 Valve Caps in metal boxes.
25 No. 935 Valve Caps (for bent valve stems) in metal boxes.
3 No. 5050 Trutest Balloon Tire Gauges (with new flat-bar pressure indicator).
1 No. 5587 Star Wrench. 1 No. 3283 Valve Repair Tool.
1 No. 5328 Pump Connection. 2 No. 6589 Double-use Tools.
2 No. 4520 Tools for removing damaged valve cores.

Refill merchandise readily obtainable on short notice. Additional cabinets free with additional complete assortments.

The Schrader "Reddy Seller", painted red, looks like a big tire gauge—6" in diameter; 15" high. Works like a slot machine. Keeps stock orderly; tools handy. Special Gas Station Assortment is somewhat different from that shown in illustration (see list).

MERRILY on goes the struggle among gas stations, to outdo one another in "free" services. But surveys show that the average motorist is just as much interested in what he can *buy* conveniently as in what he can get for nothing.

Lost valve caps, worn-out valve cores—where could he have them more conveniently replaced than in the place he patronizes so frequently—the gas station? Where else is he so likely to buy that tire gauge he long promised himself? . . . And what brand of cap, core or gauge is he most ready to accept? *Schrader*—best known in America!

The Schrader "Reddy Seller" Cabinet and Special Assortment for Gas Stations

is directly related to the service nowadays expected from every gas station. It is so compact, costs so little, supplies such a long-felt need and pays so handsomely that no station can really be up to date without it. The cabinet is absolutely FREE. You pay only for the merchandise—and at an assortment price that is actually less than the regular dealer price of the merchandise if bought separately. Assortment includes a number of service devices needed by station operators to give the motorist "100 per cent air service". We invite station-operating gasoline distributors to write for further details. A. Schrader's Son, Inc., Brooklyn, N. Y.

Schrader
Reg. U. S. Pat. Off.
Makers of Pneumatic Valves since 1844
TIRE VALVES TIRE GAUGES

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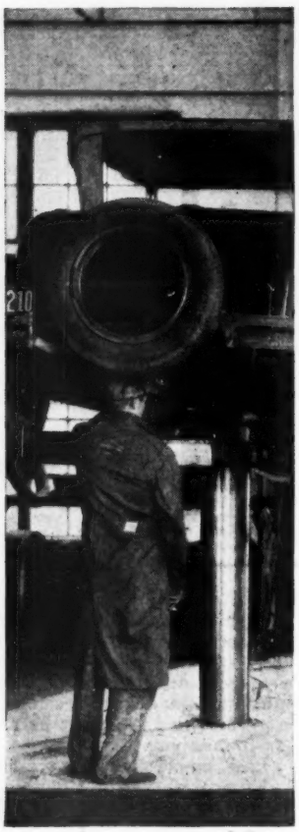

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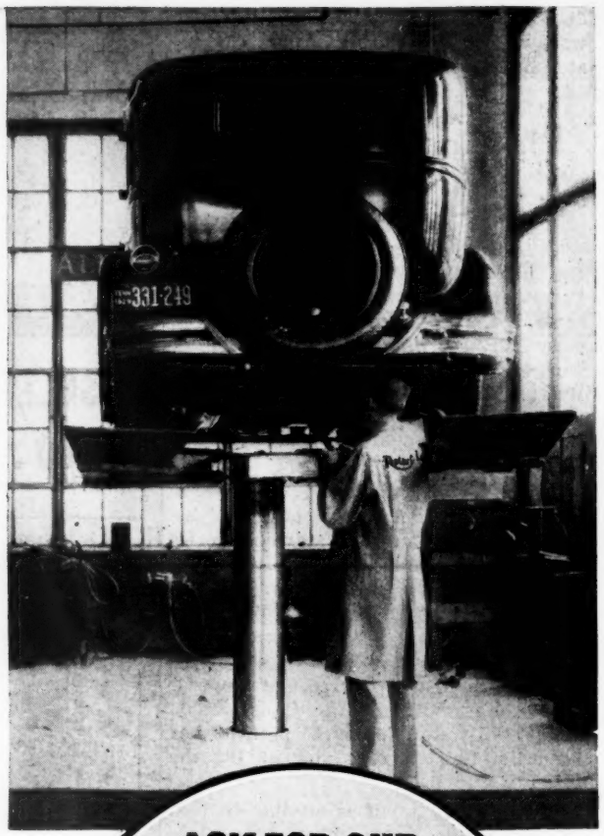
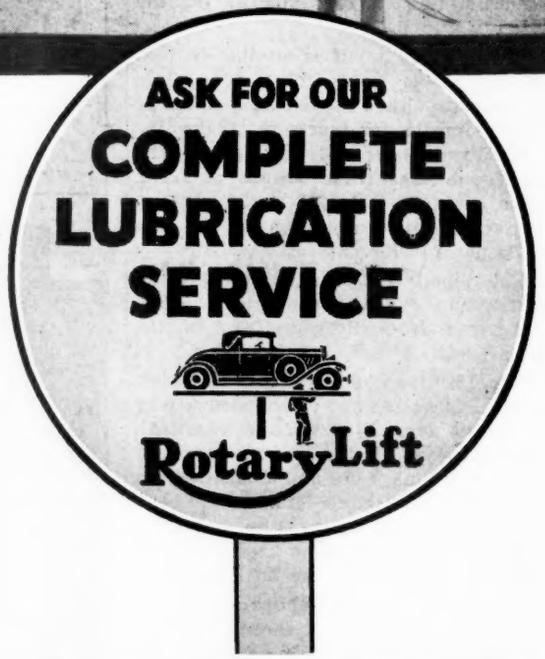


THE first national campaign in the direct interest of every Rotary Lift owner starts this week in the Saturday Evening Post, and is sponsored by the Rotary Lift Company, manufacturers of the Original Rotary Lift.

The Rotary Lift advertisements in good size space will appear regularly from now until November, and will effectively sell millions of motorists on the complete Rotary Lift Lubrication Service. These ads will repeatedly tell these motorists to have their cars lubricated at stations which display the Red and White Rotary Lift Identification Sign.

Get the benefit of this national advertising for your service station by displaying the Rotary Lift Sign—the Sign will identify your Lubrication Service with the Rotary Lift advertising to the hundreds of Saturday Evening Post readers in your neighborhood.



Write or wire today for the Rotary Lift Identification Sign shown above and new merchandising plan. Rotary Lift Company, 1050 Kentucky St., Memphis, Tenn.

THE ORIGINAL ROTARY LIFT
MEMPHIS, TENN.

Refinery - Tank Wagon Markets

Mid-Continent Gasoline Markets Improve; Prices Recede in Other Areas

CLEVELAND, March 23

CONFLICTING price trends were noted in refinery markets last week. Perhaps the most favorable development of the week was the improvement in middle western gasoline markets. In the majority of other areas prices of both light and heavy oils sought lower levels.

While the price of U. S. Motor gasoline in Oklahoma remained at a minimum of 3.50 cents to the jobbing trade, prices in other areas of the Mid-Continent moved up to this level.

Resale agents in Chicago and Tulsa also reported their cost prices had advanced although many of them still were in position to continue with their same selling prices for at least a short time yet. There was no rush of buying from the middle western jobbing trade but a gradual increase in inquiries and sales was reported quite generally.

Tank car, tank wagon and cargo markets on the west coast declined following the second reduction in crude prices made by the Union Oil Co. and the Standard of California. Tank car trading generally was fair to good. Eastern and foreign activity in the bulk market subsided pending the settling of prices.

Tank car prices for gasoline receded 0.25 cent a gallon in several of the more important Atlantic seaboard markets. Kerosine prices also were down 0.25 to 0.5 cent at New York harbor, Baltimore and Philadelphia.

Lubricating oils showed further improvement in the Pennsylvania market. Bright stock prices advanced slightly and neutral oils remained relatively tight.

Wax buying was light in the majority of markets. Prices were down slightly at New York following the reductions at New Orleans the previous week.

New Q. D. A. Holds Attention of Chicago Trade

Staff Special

CHICAGO, March 21

CONTEMPLATED changes in the gasoline Quantity Discount Agreement by a number of the major marketing companies in the middle west, including the Standard of Indiana, enlivened the Chicago market in the week ended March 21.

No changes are expected to be made in the net discount to the tank wagon buyer, but the discounts will be figured from the tank wagon price instead of from the service station price. The latter method was first put into effect Oct. 1, 1928 and evidently has not proved successful. Just what effect, if any, the new Q.D.A. will have on the general market situation was a matter for speculation, but the general opinion was that it would give the major companies a better chance of meeting cut-price retail competition.

Light oils were in comparatively good demand and showed a tendency toward higher prices in the Chicago tank car market. The movement of heavy oils fell off and prices moved lower.

The predominating sentiment among most traders in the Chicago area was that the gasoline market had hit "bottom" and that higher prices could be expected before long. This feeling was attributed partly to more optimistic reports emanating from refining centers in Oklahoma and Texas and to the pleasant weather which prevailed over most of the middle west. Most sellers reported a steady demand for gasolines both from spot and contract buyers. The bulk of these orders were for small lots but were coming in frequently enough to keep shipments at a good level.

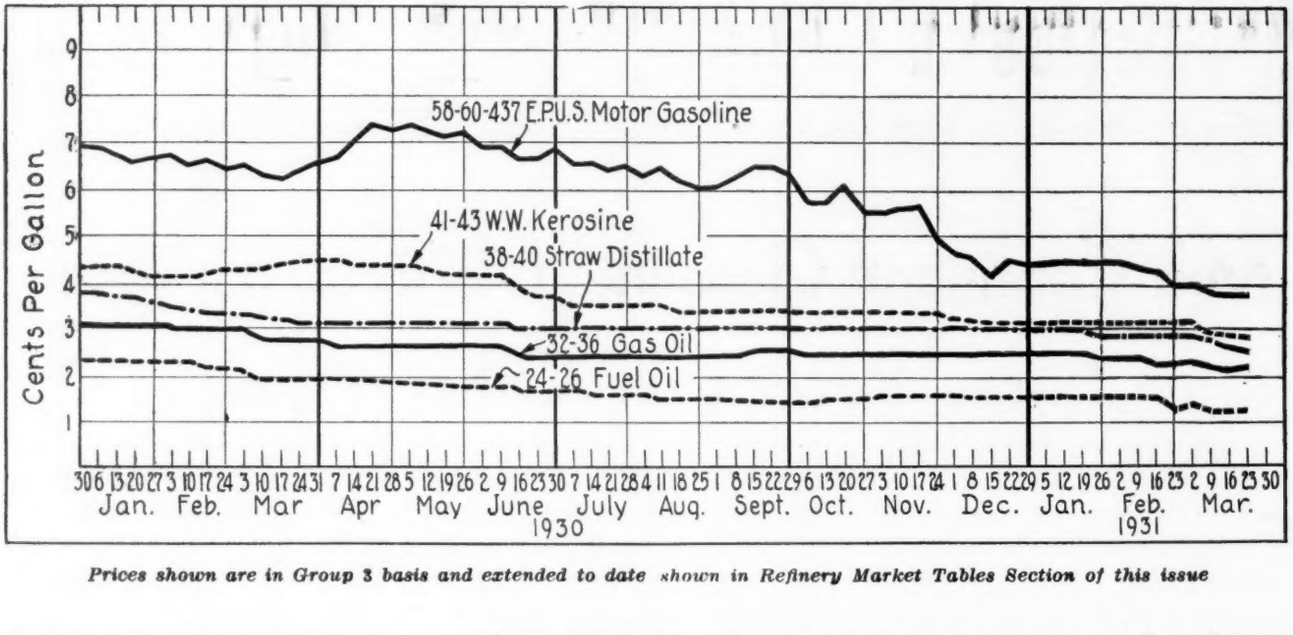
No changes were made in the price ranges for gasoline shown in the Chicago Tank Car Market of PLATT'S OILGRAM, which are prices direct to jobbers, but carlot marketers generally reported increases in their buying prices. A number of marketers, who had been buying fairly sizable quantities of U. S. Motor at 3.25 cents, said that on March 21 there was practically none available at this price. Reports were that both Oklahoma and Texas refiners were unwilling to offer U. S. Motor at under 3.375 cents for resale and at 3.50 cents direct to jobbers.

Several traders reported a fairly good demand for kerosine but most of the trade said that business was dull. Some said that jobbers were using more distillate because of its low price. Kerosine prices generally were 0.125 cent lower, with 41-43 w.w offered at 2.625 cents.

The comparatively mild weather which prevailed over the middle west had its effect on the movement of fuel and furnace oils and consequently tank car demand was slack. Chicago tank wagon distributors generally said they were doing a fair business but that demand so far this season had been disappointing.

Both tank car and tank wagon prices were lower. Tank wagon prices of distillates, gas and fuel oils were reduced approximately 0.25 cent a gallon. Tank car prices for distillate were 0.125 cent lower while fuel oils were down 2.50 cents a barrel.

Current Prices of Principal Mid-Continent Refined Products


58-60-437 E.P.U.S. Motor Gasoline
41-43 W.W. Kerosine
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Cents Per Gallon
Jan. Feb. Mar Apr May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

I.O.M.A. to Elect Officers And Talk Plans for 1931

CHICAGO, March 21.—Directors to serve the coming year for the Independent Oil Men of America were scheduled to be selected March 23, during the association's annual three-day convention at the Sherman Hotel here, beginning March 22.

E. H. Hilpp, president of the Kentucky Consumers Oil Co. and president of the association, was to preside at the election of directors.

A greeting to members and the report of the Board of directors was to be delivered by W. R. McCain, chairman of the board. In addition to the report of president Hilpp, C. Y. Hinchey, executive manager, was to make his report.

On the last day, new trustees and officers will be announced, and presentation of plans for the coming year will be made. An extemporaneous discussion was scheduled last on the program.

WASHINGTON—The 10 per cent emergency surcharge of import duty on petroleum products imported into Cuba was reduced to 1/100 of 1 per cent by presidential decree, effective on shipments made after March 14. Rates of import duty were completely revised on all petroleum products.

S. O. Indiana Conducting Driving Tests

CHICAGO, March 23.—Standard Oil Co. of Indiana is conducting a track test of motor fuels and lubrication at the Indianapolis speedway under American Automobile Association contest board control.

Thirteen sedans of various makes were purchased out of stock and started running March 16. The cars will be operated night and day for about 30 days. At the close of the test announcement will be made regarding oil and gasoline consumption at various speeds, cylinder and bearing wear, carbon accumulation and the like.

Shipments From Southern California

LOS ANGELES, March 19.—Shipments of bulk petroleum from southern California ports to Foreign and Atlantic Seaboard ports totaled 779,603 barrels, a decrease of 2008 barrels under the record low of a week ago. Destination and quantity of shipments were as follows:

Destination	Crude	Gasoline	Diesel	Kerosine	Fuel	Total
Pacific For.	79,170	96,749	65,236	.....	74,962	316,097
Atlantic Dom.	.....	395,395	.....	.....	.....	395,395
Atlantic For.	.....	.....	.....	68,211	.....	68,211

Total shipments from these ports during February were 8,035,605 barrels as compared with 9,017,832 barrels shipped in January. The distribution was as follows:

Destination	Crude	Gasoline	Kerosine	Diesel	Fuel	Total	Batching oil
Pacific Dom.	1,400,705	1,133,683	23,664	119,510	978,191	3,644,753	.....
Pacific For.	311,107	255,373	118,277	231,044	1,673,806	2,605,385	15,778
Atlantic Dom.	.....	1,214,711	.....	196,794	.....	1,411,505	.....
Atlantic For.	.....	305,505	.....	.....	68,457	373,962	.....

Prices 10 Years Ago
March 21, 1921

	Oklahoma	Penna.
58-60 U. S. Motor.....	15.00-15.50c	18.75-19.25c
80-84 Natural	9.00-10.00c	.....
Kerosine (42-43 Okla.; 47 w. w. Pa.)	4.50-4.75c	9.00-9.50c
Fuel Oil (24-26 Okla.; 36-40 Pa.)	$0.70-$0.80	4.75-5.00c
Crude (Okla. 35-35.9)	$1.75	$3.00
Chicago tank wagon (no state tax)		23.00c

Prices A Year Ago
March 24, 1930

	Oklahoma	Penna.
58-60 U. S. Motor.....	6.4166c	7.25-7.75c
Grade A Natural.....	5.75c	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.).....	4.25-4.50c	6.25-6.75c
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.80-$0.85	4.375-4.625c
Crude (Okla. 35-35.9)..	$1.17	$2.75
Chicago tank wagon (including 3c tax)		17.00c

Mid-Continent Refinery Markets

Gasoline Markets Show Gradual Improvement

Staff Special
TULSA, March 21

SEVERAL factors which developed during the third week of March gave evidence of a gradual but noticeable improvement in the Mid-Continent gasoline market, and caused a more optimistic feeling among refiners.

The improvement was confined, however, strictly to gasolines. Kerosines and distillates furnished no cause for optimism, and the gas and fuel oils barely managed to hold their ground.

One of the major factors in the gasoline market's improvement was the increase in inquiries. Refiners reported inquiries had been received from accounts who had been comparatively inactive for some time, and that the inquiries in many cases were for larger quantities of gasoline.

Inquiries do not always result in an improved market, jobbers many times making the inquiries primarily in order to "feel out" the situation. But during the past week many inquiries developed into business. This was taken by sales managers generally as indicative of the desire on the part of jobbers to begin preparing for the spring and summer demand.

With favorable weather it would be natural for jobbers to show more interest in the gasoline market now that the crude and tank wagon prices have been revised, and they can tell more nearly where they stand with reference to the immediate future.

Another factor which supported the market was the advance in quotations by several refiners who had been factors in establishing the low of the price range. These advances were made late in the week, and were reported to have resulted in sufficiently increased business to keep them busy for the next week or 10 days.

Quotations generally March 21 were 3.50 cents to marketers for 58-60 U. S. Motor from Oklahoma plants with quotations to jobbers ranging from 3.50 to 4 cents. Marketers generally were quick to cover sales as they were made rather than to take a chance and sell short.

North Texas probably experienced the most improvement. Gasoline a week or 10 days ago was freely offered at 3.25 cents but by the end of the week the price was well entrenched at 3.50 cents for shipment in competition with Group 3, and 3.625 to 3.75 cents for movement within the state.

Kansas refiners remained well in line with Oklahoma group. The Arkansas and Louisiana refiners made no changes in quotations, and reported business had increased slightly in the course of the week.

Natural gasolines experienced little change in demand and prices for the most part held their ground. Grade A was more freely offered and the price moved nearer to that of grade AA.

A majority of the larger purchasers of naturals showed only passing interest in the market, as did the two or three major manufacturers who in the past have bought for storage when prices declined. One company earlier in the month bought some gasoline for shipment to its Gulf terminal for stabilization and storage, but during the past week was reported to have offered some gasoline for sale.

Shipments were confined largely to contract orders. Spot buying was for comparatively small quantities.

Kansas refiners reported a small buying flurry on kerosines but other refiners in the Mid-Continent reported orders were extremely light. Prices in Oklahoma, Louisiana and Arkansas districts lost ground.

Distillate demand also was lighter several refiners reported, and prices in many instances touched 3.25 cents for 38-40 straw grade. The prime white grade was scarcer and brought a slightly higher price. Gas oil prices remained unchanged throughout the week but buying was for small quantities. Offers of large quantities were reported made to buyers who usually desire the oil for cracking, but the sales were not consumated despite the report that the price was considerably under prevailing quotations for spot orders.

Fuel oils held their own with demand only fair. Several refiners showed little interest in the spot fuel market, apparently content to ship against existing railroad contracts which netted them a better price than would spot sales.

Several price changes were reported in the neutral oils lists, but the lows of the ranges were not affected. The majority of changes resulted only in the narrowing of price ranges.

Demand for neutral oils was only fair, but opinion was general in the Mid-Continent that the improved situation in Pennsylvania would be reflected in this territory within a short time.

Bright stock prices were unchanged with demand comparatively light.

Wax was quoted at 2 cents a pound by a majority of manufacturers, with two companies reported to be sold up for the next 30 days.

Moves Office to California

PARIS—William D. Waltman, vice president of the Franco Wyoming Oil Co., who represents that company and the Franco Western Oil Co., McElroy Ranch Co. and Isolantite, Inc., here, will transfer his general offices from New York to 601 Edison Bldg., Los Angeles, May 1.

Mr. Waltman will retain his offices at 9 Blvd. de la Madeleine, Paris and in the First National Bank Bldg., Denver. His new residence address will be Box 37, La Mesa, Cal.

Canadian Dumping Duty More Widely Applied

TORONTO, March 23—Provisions of the customs act of Canada, governing import and dumping duties on refined gasoline from the United States, under which new duties were levied for the first time last September, on gasolines from Pennsylvania and the eastern district, have recently been extended to cover all refining and shipping points in the United States except the Pacific coast. The new order was issued as Appraisers Bulletin No. 3686, by R. W. Breadner, Commissioner of Customs, Ottawa, and gives the minimum price at which refined motor fuels may be imported into Canada.

In case the invoice value of the imported fuel is lower than those given in the accompanying table, for each district included, a dumping duty is levied, equal to the difference between the invoice value and these minimum prices. The import tax of 2½ cents applies to all incoming motor fuels.

The appraisal prices for fuels from the different districts enumerated are as follows, based on crude prices as of Feb. 24, 1931. Adjustment in these prices based on changes in crude prices may be made at any time, in the judgement of the commissioner.

Pennsylvania, New York and district, which includes Atlantic Seaboard 8.119 cents per wine gallon. Toledo, Detroit, Cleveland and district 8.76 cents per gallon, Chicago and district 7.66 cents per gallon, Minneapolis and district 8.01 cents per gallon.

Wood River, St. Louis and district 7.26 cents per gallon, Mid-Continent district, which includes the states of Oklahoma, Kansas, part of Missouri, part of Arkansas and north Texas 5.51 cents per gallon, south Texas, Louisiana and district 7.06 cents per gallon.

Wyoming and district 5.51 cents per gallon Montana and district 8.51 cents per gallon.

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect March 23

	Price F.O.B. Group 3	*Price F.O.B. Point of Origin*	*If for Particular Destination*
Oklahoma	3 50 –4.00	3.50 –4.00	
Kansas	3 75 –4.00		S. O. Neb. & Indiana Territories, etc.
Kansas		4.00 –4.25	Kansas only.
North Texas	3.50 –3.75	3.50 –3.75	
West Texas	3.50 –3.75	3.50 –3.75	
Louisiana-Arkansas	3 625-3 75		Michigan, Ohio and Indiana.
Louisiana-Arkansas		4.00	State or differential haul.
Indiana-Illinois	3.50-4.25	*	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from Indiana and Illinois refineries, according to conditions and freight rates; no prices F. O. B. point of origin can be given.

Chicago Tank Car Market

CHICAGO, March 21

MOST sellers reported a steady demand for gasoline, both from spot and contract buyers. Orders were mostly for small lots. Sales made to jobbers were without any material change in price over the previous week. Carlot marketers generally reported an increase in their buying prices. Lack of cold weather continued to hamper the demand for fuel and furnace oils. Prices of most grades moved downward. Industrial concerns still showed little interest in the fuel oil market.

Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts. [illegible] North and West Texas, Arkansas, Indiana, Illinois, Kentucky, etc.

	Prices March 23	Prices March 16	Prices March 9
58-60 U. S. Motor, 437 e.p.	3.50 – 3.875	3.50 – 3.875	3.50 – 3.875
†56-62 400-437 e.p. anti-knock gasoline	3.875– 4.875	3.875– 4.875	3.875– 4.875
60-62 437 e.p. gasoline	3.50 – 3.875	3.50 – 4.00	3.625– 4.00
60-62 400 e.p. gasoline	3.625– 4.00	3.625– 4.125	3.75 – 4.125
64-66 375 e.p. gasoline	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
68-70 350-360 e.p. gasoline	4.50 – 4.875	4.50 – 4.875	4.625– 5.00
*Domestic Aviation Gasoline	6.00 – 6.25	6.00 – 6.25	7.00 – 7.25
41-43 w.w. kerosine	2.625– 3.00	2.75 – 3.00	2.875– 3.00
42-44 w.w. kerosine	2.875– 3.125	3.00 – 3.25	3.00 – 3.25
38-40 p. w. distillate	2.25 – 2.625	2.375– 2.625	2.50 – 2.75
38-40 straw distillate	2.25 – 2.50	2.50 – 2.625	2.50 – 2.625
32-36 ordinary dark gas oil	1.50 – 1.75	1.625– 1.875	1.75 – 2.00
32-36 dark zero gas oil	2.00 – 2.25	2.00 – 2.25	2.125– 2.375
32-36 straw zero gas oil	2.125– 2.375	2.125– 2.375	2.25 – 2.50
28-30 zero fuel oil (per bbl.)	$0.75 –$0.80	$0.775–$0.825	$0.80 –$0.85
28-30 fuel oil (per bbl.)	$0.75 –$0.775	$0.75 –$0.80	$0.775–$0.825
24-26 fuel oil (per bbl.)	$0.525–$0.575	$0.575–$0.625	$0.575–$0.625
18-22 fuel oil, low sulfur (per bbl.)	$0.45 –$0.475	$0.475–$0.525	$0.475–$0.525
18-22 fuel oil, high sulfur zero (per bbl.)	$0.45 –$0.50	$0.475–$0.525	$0.50 –$0.55
14-16 fuel oil (per bbl.)	$0.375–$0.425	$0.375–$0.425	$0.375–$0.425

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Over 45% benzol equivalent. Prices represent quotations and sales.

White Oak Opens New York Office

NEW YORK, March 20.—A new York office at 15 Moore St. has been opened by the White Oak Corp., Tulsa, under the management of Roger Moran with A. J. Doremus as eastern sales manager.

The New York office can handle any of the products made by the White Oak Refining Co. for domestic or export shipment out of the Gulf. Through the Gulf States Terminal & Transport Co., Inc., of which the White Oak is a subsidiary, the company operates ocean terminals at Houston, Galveston, Texas City, New Orleans and Arkansas Pass. It has refineries at three Oklahoma points and fuel oil bunker stations at all principal Gulf ports.

The company makes the usual diversified line of gasoline, naphtha, fuel and bunker oil, as well as steam refined stocks.

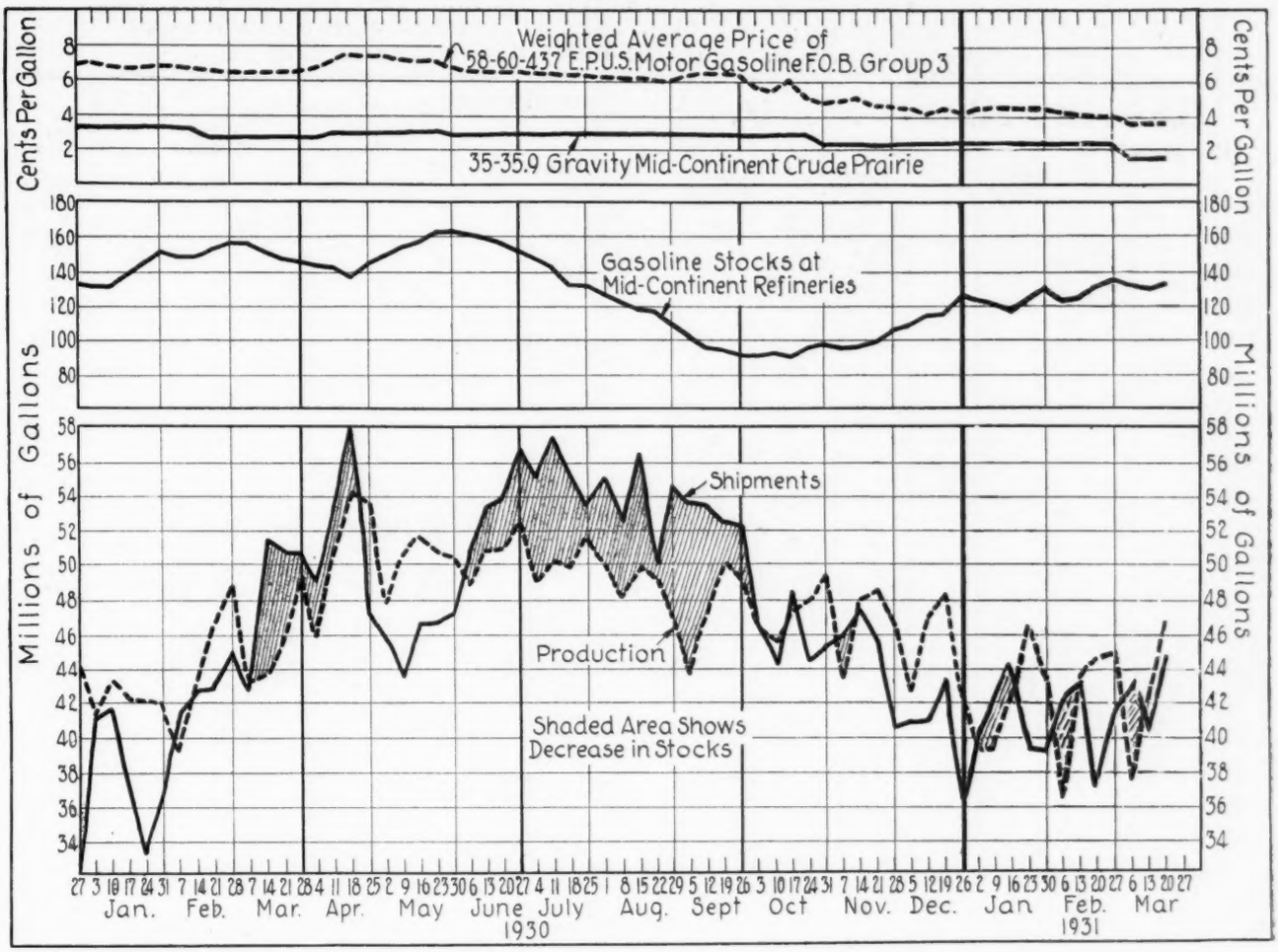
Mr. Doremus was at one time with the General Oil Co. of New York.

April Meeting For Tennessee Oil Men

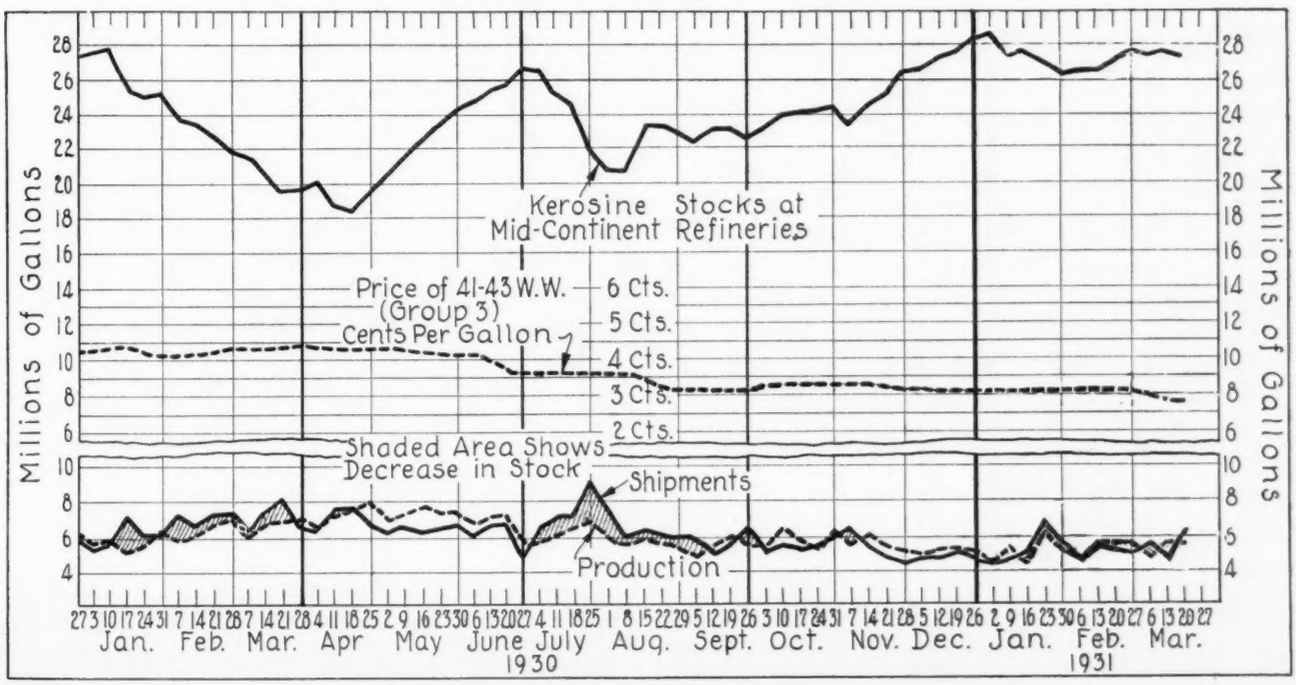
NASHVILLE, March 20.—The triannual meeting of the Tennessee Oil Men's Association will be held April 22 at the Peabody Hotel here, according to L. W. Collins, executive secretary.

Barometer of Mid-Continent Refinery Market—Week Ending March 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 98 Plants to National Petroleum News


Cents Per Gallon
Weighted Average Price of 58-60-437 E.P.U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude Prairie
Millions of Gallons
Gasoline Stocks at Mid-Continent Refineries
Shipments
Production
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept Oct Nov. Dec. Jan Feb. Mar
1930
1931

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 82



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices March 23	Prices March 16	Prices March 9
48-50 450 e.p. naphtha...	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
50-52 450 e.p. naphtha...	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
56-58 450 e.p. gasoline...	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
58-60 450 e.p. gasoline...	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
58-60 U.S. Motor 437 e.p.	3.50 – 4.00	3.50 – 4.00	3.625– 4.00
60-62 437 e.p. gasoline...	3.625– 4.125	3.625– 4.125	3.75 – 4.125
60-62 400 e.p. gasoline...	3.75 – 4.25	3.75 – 4.25	4.00 – 4.25
64-66 390 e.p. gasoline...	4.25	4.25	4.25
64-66 375 e.p. gasoline...	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
68-70 350-360 e.p. gasoline	4.75	4.75	4.75
‡Domestic Aviation Gasoline.....	5.25 – 6.00	5.25 – 6.00	6.50 – 7.00

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	5.375– 5.50	5.375– 5.50	5.75
54-56 Naphtha.....	5.375– 5.50	5.375– 5.50	5.75
58-60 U.S. Motor 437 e.p.	5.50 – 5.75	5.50 – 5.75	5.75 – 5.875
60-62 400-410 e.p. gasoline	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
64-66 390 e.p. gasoline...	6.00 – 6.50	6.25 – 6.50	6.25 – 6.75
68-70 350-360 e.p.....	7.00 – 7.50	7.00 – 7.50	7.00 – 7.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point.....	8.00	8.00	8.00

KANSAS (F. o. b. refinery Kansas destination)

58-60 U.S. Motor 437 e.p.	4.00 – 4.25	3.875– 4.125	4.00
60-62 437 e.p. gasoline...	4.125– 4.375	4.00 – 4.25	4.00 – 4.25
60-62 400 e.p. gasoline...	4.25 – 4.50	4.50	4.50
64-66 375 e.p. gasoline...	5.00	5.00	5.00

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline...	3.50	3.50	3.50 – 3.625
58-60 450 e.p. gasoline...	3.50	3.50	3.50 – 3.625
58-60 U.S. Motor 437 e.p.	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
60-62 400 e.p. gasoline...	3.625– 4.00	3.75 – 4.00	3.75 – 4.00
64-66 390 e.p. gasoline...	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
64-66 375 e.p. gasoline...	4.25 – 4.50	4.375– 4.625	4.375– 4.625
68-70 350-360 e.p. gasoline	4.50 – 4.75	4.75	4.75

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	3.375– 3.50	3.375– 3.50	3.375– 3.50
58-60 437 e.p. gasoline...	3.375– 3.625	3.375– 3.625	3.375– 3.625
58-60 U.S. Motor 437 e.p.	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e.p.	4.00	4.00	4.75

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	4.00	4.00	4.50

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	3.75 – 4.50	4.75 – 5.25	6.00 – 7.00
54-58 U.S. Motor, for outside state shipment....	3.75 – 4.50	4.75 – 5.25	6.00 – 7.00
58-61 375-400 e.p. gasoline	5.00 – 6.00	5.25 – 6.00	8.50 – 9.50
42-45 Engine Distillate 445-480 e.p.....	4.00 – 4.50	4.75 – 5.25	6.00 – 7.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	2.625– 2.75	2.625– 2.75	3.00
Grade A, 72-79.9, 90% Recovery.....	2.625– 2.75	3.00	3.25 – 3.375
Grade BB, 84-92, 85% Recovery.....	2.25 – 2.375	2.25 – 2.375	2.50
Grade B, 76-83.9, 85% Recovery.....	2.375– 2.50	2.50 – 2.625	2.625– 2.75
Grade C, 80-92, 78% Recovery.....	2.125– 2.25	2.25 – 2.375	2.50

NORTH TEXAS (F. o. b. Breckenridge)

	Prices March 23	Prices March 16	Prices March 9
Grade AA, 80-87.9, 90% Recovery.....	2.625– 2.75	2.625– 2.75	3.00
Grade A, 72-79.9, 90% Recovery.....	2.625– 2.75	3.00	3.25 – 3.375
Grade BB, 84-92, 85% Recovery.....	2.25 – 2.375	2.25– 2.375	2.50
Grade B, 76-83.9, 85% Recovery.....	2.375– 2.50	2.50 – 2.625	2.625– 2.75
Grade C, 80-92, 78% Recovery.....	2.125– 2.25	2.25 – 2.375	2.50

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA.....	†2.75	†2.875	†3.125
Grade BB.....	†2.375	†2.50	†2.625
Grade C.....	†2.25	†2.50	†2.625

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending.....	4.00 – 4.50	4.50 – 5.00	5.00 – 6.00

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosine.....	4.625– 4.875	4.625– 5.00	4.625– 5.00
46 w.w. kerosine.....	4.75 – 5.25	4.75 – 5.25	4.875– 5.25
47 w.w. kerosine.....	5.00 – 5.375	5.125– 5.375	5.25 – 5.375
300 mineral seal.....	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine.....	2.625– 3.00	2.75 – 3.00	2.875– 3.00
42-44 w.w. kerosine.....	3.00 – 3.25	3.00 – 3.25	3.125– 3.25

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine.....	3.25	3.25	3.25
42-44 w.w. kerosine.....	3.50	3.50	3.50

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w.w. kerosine.....	2.50 – 2.625	2.50 – 2.625	2.625– 2.75
41-43 w.w. kerosine.....	2.75 – 3.00	2.75 – 3.00	2.75 – 3.125

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine.....	3.50	3.50	3.75
42-44 w.w. kerosine.....	3.75	3.75	4.00

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine.....	3.50	3.50	3.75

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosine.....	4.50 – 5.00	4.50 – 5.50	5.00 – 6.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt....	†22.50 –23.00	†22.50 –23.50	†22.00 –23.00
180 No. 3 Assoc. Filt....	†19.50 –20.50	†19.50 –20.50	†19.00 –20.00
150 No. 3 Assoc. Filt....	†17.00 –18.00	†17.00 –18.00	†17.00 –17.50

Note: Low cold test neutral oils are quoted approximately 6c per gal. higher than prices shown above.

		(Non Viscous)	
34 Grav. 330-340 Flash...	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color		(Viscosity at 100° F.)	
100—No. 2.....	5.25	5.25 – 5.50	5.25 – 5.50
150—No. 3.....	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
150—No. 4.....	6.50	6.50	6.50
180—No. 3.....	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 4.....	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
180—No. 5.....	7.50	7.50	7.50
200—No. 3.....	9.50	9.50	9.75 –10.00
200—No. 4.....	8.50	8.50 – 9.00	9.25 – 9.50
200—No. 5.....	8.25	8.25 – 8.50	8.75 – 9.00
220—No. 3.....	10.00 –10.50	10.00 –10.50	11.50
220—No. 4.....	9.75 –10.25	9.75 –10.25	11.00
220—No. 5.....	10.00 –10.25	10.00 –10.25	10.00
240—No. 3.....	12.00	12.00 –13.00	13.50
240—No. 4.....	10.50	10.50 –11.00	11.00 –12.00
240—No. 5.....	10.50 –11.00	10.50 –11.00	10.50 –11.50
280—No. 3.....	14.00	14.00	15.00
280—No. 4.....	13.00	13.00 –13.50	13.00 –14.00
280—No. 5.....	12.00	12.00 –12.50	12.00 –13.00

Note: Quotations for 0 to 10 cold test neutral oils are 1 to 2 cents higher, depending on the grade.

****Prices represent Quotations and Sales.**

†Prices nominal ††Only one refiner quoting *Quotations only

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis. Color	Prices March 23 (Viscosity at 100° F., pour test 0)	Prices March 16	Prices March 9
100—No. 2 Pale	5.50 – 6.25	5.50 – 6.25	5.50 – 6.25
200—No. 3 Pale	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 3 Pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
500—No. 3½ Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
750—No. 4 Pale	11.50 –12.50	11.50 –12.50	11.50 –12.50
1200—No. 4 Pale	14.50 –15.00	14.50 –15.00	14.50 –15.00
2000—No. 4-5 Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200—No. 5½ Red Oil	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300—No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
500—No. 6 Red Oil	9.00 –10.00	9.00 –10.00	9.00 –10.00
750—No. 6 Red Oil	11.25 –11.75	11.25 –11.75	11.25 –11.75
1200—No. 5-6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00
2000—No. 6 Plus Red Oil	15.50 –16.00	15.50 –16.00	15.50 –16.00

‡CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50	11.50	11.50
300—No. 3	13.00	13.00	13.00
450—No. 3	15.50	15.50	15.50
550—No. 3	16.50	16.50	16.50
600—No. 3	17.00	17.00	17.00
200—No. 5	11.00	11.00	11.00
300—No. 5	12.00	12.00	12.00
400—No. 5	14.00	14.00	14.00
500—No. 5	15.00	15.00	15.00
600—No. 5	16.00	16.00	16.00
700—No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Cylinder stock prices represent quotations and sales to domestic jobbers only).

190-200 Vis. D at 210° Brt. St.	23.00	23.00	23.00
150-160 Vis. D at 210° Brt. St., 0-10 cold test	17.50 –18.00	17.50 –18.00	17.50 –19.00
150-160 Vis. D at 210° Brt. St., 10-25 cold test	15.00 –17.00	15.00 –17.00	16.00 –17.00
150-160 Vis. D Brt. Stock, 25-40 cold test	15.00	15.00	15.00 –16.00
150-160 Vis. E 210° Brt. St.	15.00 –16.00	15.00 –16.00	15.00 –16.00
600 St. Ref. Olive Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
600 St. Ref. Dark Green	4.50 – 5.50	4.50 – 5.50	4.50 – 5.50
Black Oil	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	8.25 – 8.75	8.25 – 8.75	8.25 – 8.50
650 Steam Refined	11.75 –12.50	11.75 –12.75	12.00 –13.00
600 Flash	13.50 –14.00	13.50 –14.00	13.50 –14.50
630 Flash	18.50 –20.00	18.50 –20.00	19.00 –20.00
600 Warren E	12.25 –13.00	12.25 –13.00	12.25 –13.00
600 Oil City E	12.00 –13.00	12.00 –13.00	12.00 –13.00
600 D Filtered	†14.50 –15.00	†14.50 –15.00	†14.50 –15.00
Cold Test Stocks, 140-150 vis. at 210°, 540-550 flash, No. 8 color, ‡20 pour test and below	18.50 –19.00	18.50 –19.00	18.50 –19.00
No. 8 color, ‡25 and 35 pour test	18.00 –19.00	18.00 –19.00	18.00 –19.00
No. 8 color, ‡40 pour test and above	18.00 –19.00	17.50 –19.00	17.50 –19.00

‡Beginning March 16, pour tests changed to those shown above. Were formerly: 25 pour test; 25-35 pour test; and above 35 pour test, respectively.

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
124-126 white crude scale, a.m.p.	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

124-126 White Crude Scale, a.m.p.	2.00	1.875– 2.00	1.875– 2.00

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.00 – 3.25	3.00 – 3.25	3.00 – 3.50
30-34 fuel oil	3.125– 3.25	3.125– 3.25	3.125– 3.50
28-32 fuel oil	3.125– 3.25	3.125– 3.25	3.125– 3.50

Note: Zero cold test fuel oils are quoted 0.25c to 0.50c higher than prices shown above.

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices March 23	Prices March 16	Prices March 9
38-40 straw distillate	2.375– 2.625	2.50 – 2.625	2.625– 2.875
36-38 straw distillate	2.25 – 2.375	2.25 – 2.375	2.50
32-36 straw gas oil	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
32-36 straw gas oil zero	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
32-36 dark gas oil	1.75	1.75	1.75 – 2.00
32-36 dark gas oil zero	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
28-30 zero fuel oil(per bbl.)	$0.80 –$0.85	$0.80 –$0.85	$0.80 –$0.85
28-30 fuel oil (per bbl.)	$0.75 –$0.80	$0.75 –$0.80	$0.75 –$0.80
26-28 fuel oil (per bbl.)	$0.65 –$0.70	$0.65 –$0.70	$0.60 –$0.70
24-26 fuel oil (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55
22-26 fuel oil (per bbl.)	$0.475–$0.50	$0.475–$0.50	$0.475–$0.50
18-22 fuel oil (per bbl.)	$0.425–$0.45	$0.425–$0.45	$0.425–$0.475
16-20 fuel oil (per bbl.)	$0.375–$0.425	$0.375–$0.425	$0.40 –$0.425
14-16 fuel oil (per bbl.)	$0.35 –$0.40	$0.35 –$0.40	$0.40

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
36-38 straw distillate	2.75	2.75	2.75
32-36 straw gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625
18-22 fuel oil (per bbl.)	$0.50 –$0.60	$0.50 –$0.60	$0.50 –$0.60
10-14 fuel oil (per bbl.)	$0.425–$0.50	$0.425–$0.50	$0.425–$0.50

NORTH TEXAS (F. o b. North Texas refineries)

38-40 straw distillate	2.375– 2.50	2.375– 2.50	2.50 – 2.75
38-40 p.w.treated distillate	2.50 – 2.75	2.50 – 2.75	2.625– 2.875
32-36 gas oil, cracked	1.75 – 2.00	1.75 – 2.00	2.00 – 2.25
32-36 St. reduced gas oil	1.50 – 1.75	1.50 – 1.75	1.75 – 2.00
24-26 fuel oil (per bbl.)	$0.375–$0.425	$0.375–$0.425	$0.375–$0.425
20-24 fuel oil (per bbl.)	$0.35 –$0.40	$0.35 –$0.40	$0.35 –$0.40
18-22 fuel oil (per bbl.)	$0.325–$0.35	$0.325–$0.35	$0.325–$0.35

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment.

34-38 gas oil	2.00	2.00	2.00 – 2.25
30-32 gas oil	1.50	1.50	1.625– 2.00
28-30 zero gas oil	2.00 – 2.25	2.00 – 2.25	2.125– 2.375
18-22 fuel oil (per bbl.)	$0.375–$0.40	$0.375–$0.40	$0.375– 0.40

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	2.50	2.50	2.50
32-36 gas oil, straw	2.50	2.50	2.50
14-16 fuel oil (per bbl.)	$0.60 –$0.70	$0.60 –$0.70	$0.60 –$0.70

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	2.50	2.50	2.50
32-36 dark gas oil	2.50	2.50	2.50
28-30 gas oil	2.25	2.25	2.25
20-24 fuel oil (per bbl.)	$0.75	$0.75	$0.75
9-12 fuel oil (per bbl.)	$0.65	$0.65	$0.65
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.40 –$0.55	$0.45 –$0.60	$0.45 –$0.60
14-18 Bunker oil (per bbl.)	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
30-34 gas oil (per bbl.)	$0.85 –$0.95	$0.85 –$0.95	$0.85 –$1.15
27 Plus Diesel oil (per bbl.)	$0.75 –$0.85	$0.75 –$0.85	$0.80 –$1.05

PETROLATUMS

PENNSYLVANIA (Per pound. in barrels, carload lots, f. o. b. Penna. refinery. In tank cars ⅝c to ¾c per pound less.) Two refiners quoting.

Snow White	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Lily White	6.125– 7.00	6.125– 7.00	6.125– 7.00
Cream White	5.125– 6.00	5.125– 6.00	5.125– 6.00
Light Amber	2.875– 3.00	2.875– 3.00	2.875– 3.00
Amber	2.625– 2.75	2.625– 2.75	2.625– 2.75
Red	2.00 – 2.50	2.00 – 2.50	2.00 – 2.50

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

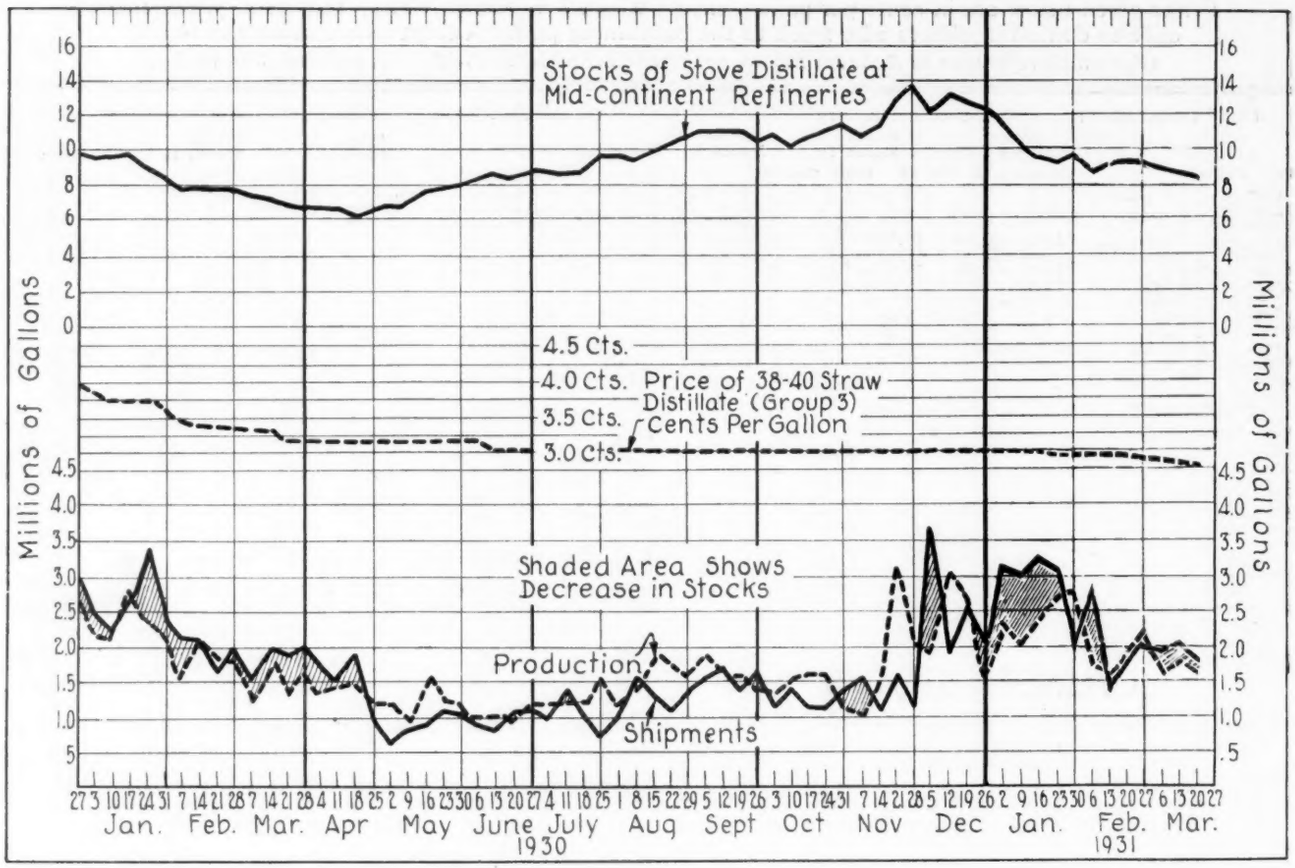
(Per ton in car lots)

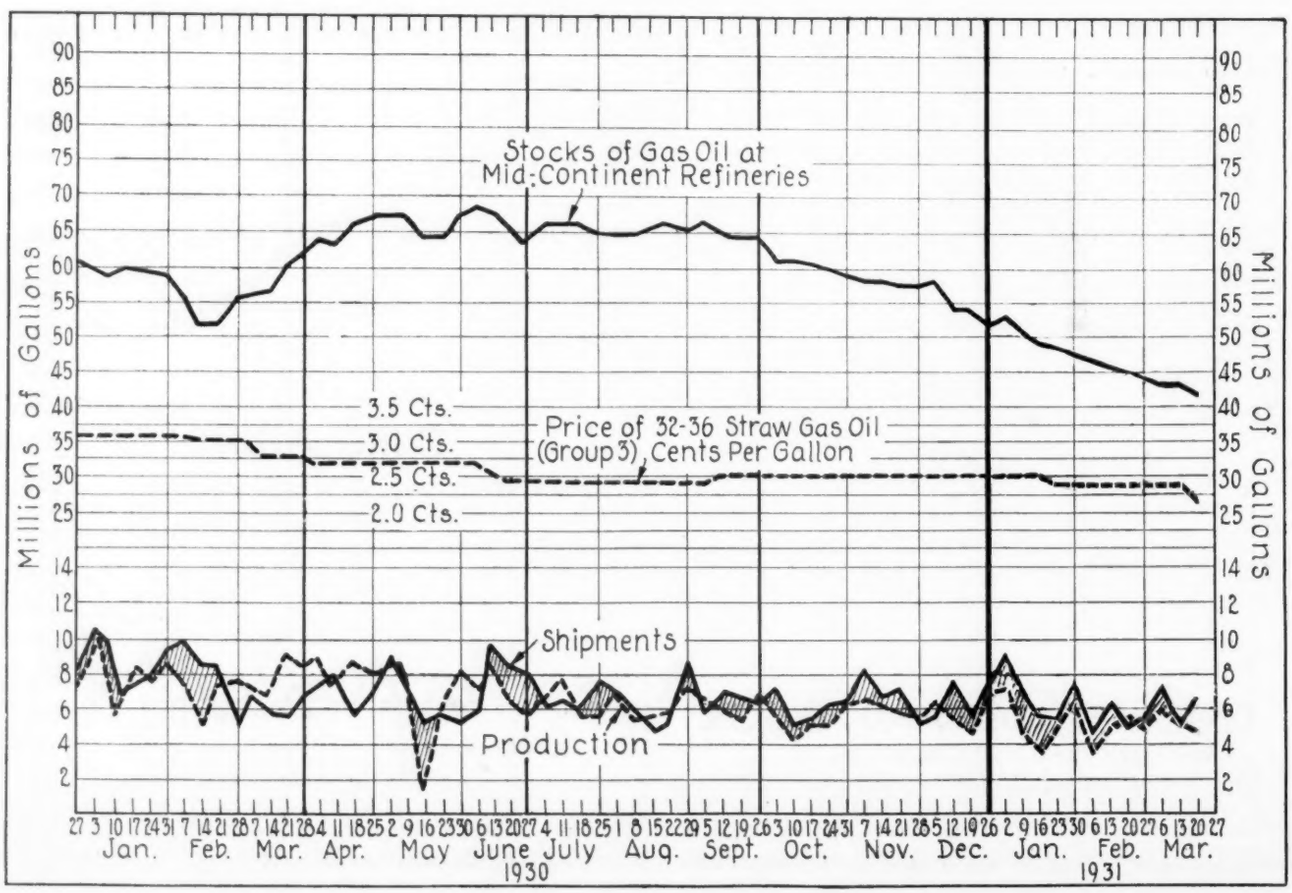
Lump	$4.50 –$5.00	$4.50 –$5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Prices represent Quotations and Sales**

Barometer of Mid-Continent Refinery Market—Week Ending March 20

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
Millions of Gallons
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
Shaded Area Shows Decrease in Stocks
Production
Shipments
Jan. Feb. Mar. Apr May June July Aug Sept Oct Nov Dec Jan. Feb. Mar.
1930
1931


Stocks of Gas Oil at Mid-Continent Refineries
Millions of Gallons
3.5 Cts.
3.0 Cts.
2.5 Cts.
2.0 Cts.
Price of 32-36 Straw Gas Oil (Group 3), Cents Per Gallon
Shipments
Production
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

HAULING GAS is a Cinch

compared to what these truck balloons stand in the oil fields

The distributing end of the oil and gas industry offers no real challenge for such tires as these Goodyear Truck Balloons.

Tank trucks travel most of their mileage on pavements. You can figure their load—and you can't overload a tank. Figure the tire size for the weight to be carried—and watch the mileage roll up.

It's a fact that these new Goodyear truck balloons will out-distance anything ever built for the fast, long haul of gas delivery—but when it comes to oil field service, it's even a better story. Because they're big and broad and run at balloon pressures—because they have the gripping power of the Goodyear All-Weather tread—they don't need roads. They march through where others stick in the mud. They deliver your pipe, your casings, your lumber, your boilers where you want your derrick.

No matter what you haul on tires, or where you haul it, ask a Goodyear Truck Tire Service Station Dealer about these balloons. He knows his job too well to recommend them unless they can make you extra money.

ON YOUR NEW TRUCKS SPECIFY GOODYEARS

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

Barometer of Mid-Continent Refinery Market—Week Ending March 20

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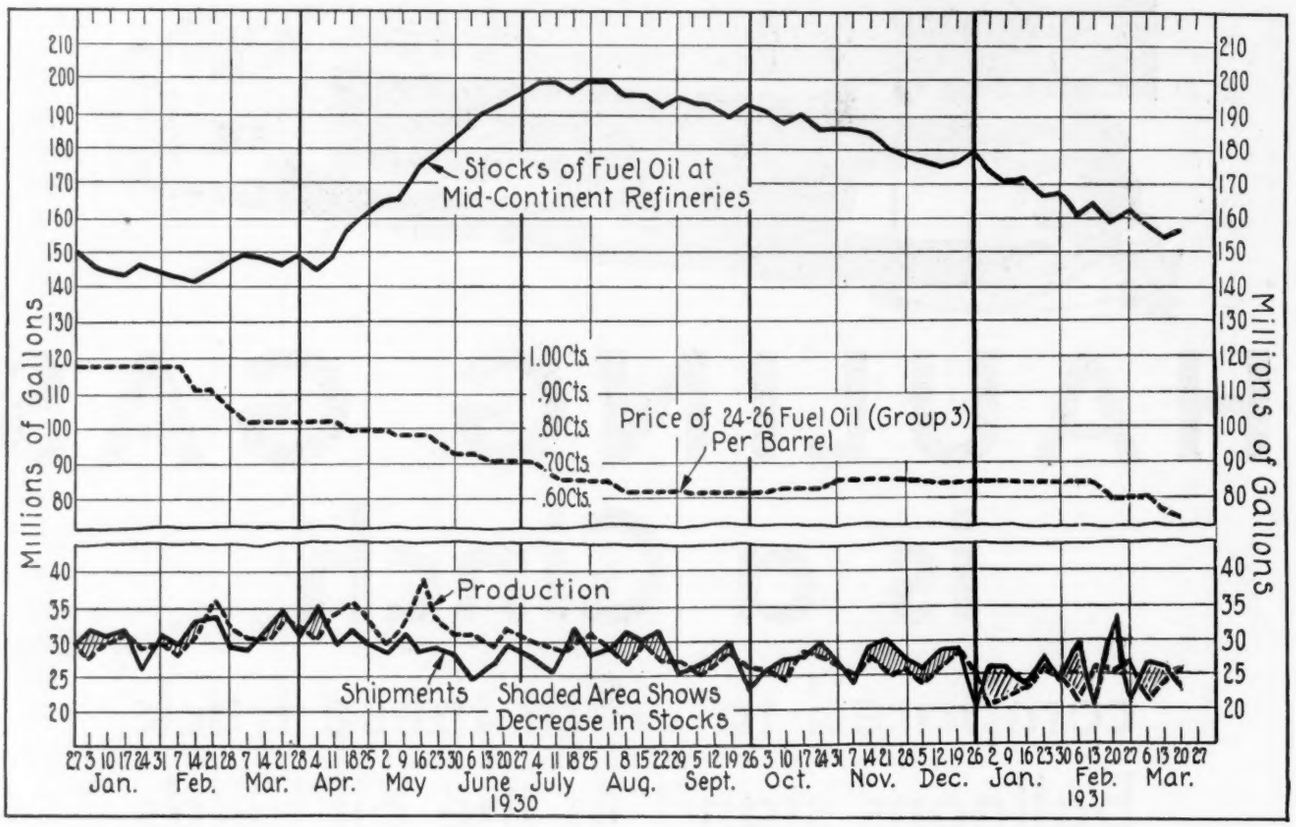


California Refinery Market

Crude Cut Sends Refined Oil Prices Lower

LOS ANGELES, March 21

PACIFIC coast gasoline prices showed further recessions the past week following a second reduction in the California crude oil price structure by Union Oil Co. March 15.

Standard of California announced March 16 a reduction of 1 cent in the tank wagon price to resale accounts in the Los Angeles, San Francisco, Fresno, and Portland districts, and a 1.5 cent cut in the Seattle and Tacoma areas.

On March 18 the retail price at Standard Stations, Inc., was reduced 1 cent in these same districts with the exception of Los Angeles where it remained unchanged. The margin to dealers offered by Standard is now 3 cents at Los Angeles and 2 cents at the other points.

In the spot gasoline market a fair amount of business was done at 4.50 cents, exclusive of tax, for both in-and out-of-state shipment. However, the majority of sales were made in the neighborhood of 4 cents and several dealers reported gasoline available at 3.75 cents.

Activity in the bulk markets was quiet the past week as exporters reported buyers had withdrawn their inquiries due to a declining price structure on the east coast.

Although nominal quotations for congo shipments by traders here were not thought to indicate the rock bottom price, buyers looking for U. S. Motor and natural gasoline and gas oil were confining their attentions nearer home. One shipper believed bulk gasoline could be bought at 4.50 cents and natural gasoline, 22 pound vapor pressure, 96 recovery, at approximately the same price and gas oil at $0.85 to $0.87 per barrel. No spot sales have been made to substantiate these figures.

Curtailment of bulk shipments to Atlantic seaboard and foreign ports during the first two months of 1931 was a source of considerable anxiety to the local trade. Excluding coastwise business, the total bulk shipments out of southern California ports for week ended March 14 totaled only 779,603 barrels.

Domestically, quotations were generally lower. In the Los Angeles basin, natural gasoline was quoted at 4 to 4.50 cents. Where some transportation was involved the price ranged downward to 3 cents.

While quotations for heavy oils in tank cars remained unchanged, several traders expressed the belief that prices would show some declines in sympathy with the lower crude and gasoline price structures. One sale of approximately 10,000 barrels of fuel oil was made at $0.45. Gas oil and diesel quotations ranged from $0.85 to $0.95 and $0.75 to $0.85, respectively.

Propose Texas Lube Tax

HOUSTON, March 21.—Representative Hanson of Tyler has announced he will seek to introduce in the legislature at Austin next week a bill levying a tax of 10 cents a gallon on lubricating oil. The tax would be paid by the wholesaler. An earlier attempt of Hanson to introduce the bill by unanimous consent failed.

Box Type Cases

Attractive and serviceable cases of black cobra grain Keratol and lined with red velveteen. Comfortable handle. Plain bottles in separate compartments.

No. 260—Contains twelve 2-oz. long bottles and five ¼-oz. tall grease jars..... **$3.20**

No. 261—Contains six 4-oz. bottles and five ½-oz. grease jars..... **$3.55**

No. 262—Contains seven 4-oz. bottles and five grease jars..... **$3.80**

No. 263—Contains nine 4-oz. bottles and four ½-oz. grease jars..... **$4.25**

10% discount for Cash

Other Styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware Kansas City, Mo.

Our Combination Offer For Testing Oils & Fuels Should Interest All Dealers In These Commodities

Write us for Details

THE DETROIT TESTING LABORATORY

554 Bagley Avenue

Detroit, Michigan

Pennsylvania Markets

Demand Generally Satisfactory

CLEVELAND, March 23.—The western Pennsylvania market generally was steady last week. Demand for most products was satisfactory, according to trade reports. There were fewer fluctuations in prices than in any previous week this year.

Neutral oils and bright stocks continued to be the most active products. While the bulk of trading of these products still was largely inter-refinery trading, several sellers said there was a noticeable increase in demand from jobbers.

Neutral oil prices generally were unchanged. Offerings were of only limited quantities and sellers had no difficulty in obtaining the prices they asked. Prices for the high pour test bright stocks moved still nearer to the prices asked for the lower pour test grades.

Gasoline movement was sluggish, most traders reported. At the same time prices held their ground fairly well. U. S. Motor was offered at 5.50 to 5.75 cents, the only variation from the previous week being that more sellers were offering gasoline at or near the low of the price range.

Kerosine demand was relatively light but sellers were looking forward to its picking up with the more favorable weather. Fuel oil was rather slow. It was offered at under 3 cents a gallon in the Bradford district but prices in the other districts were unchanged.

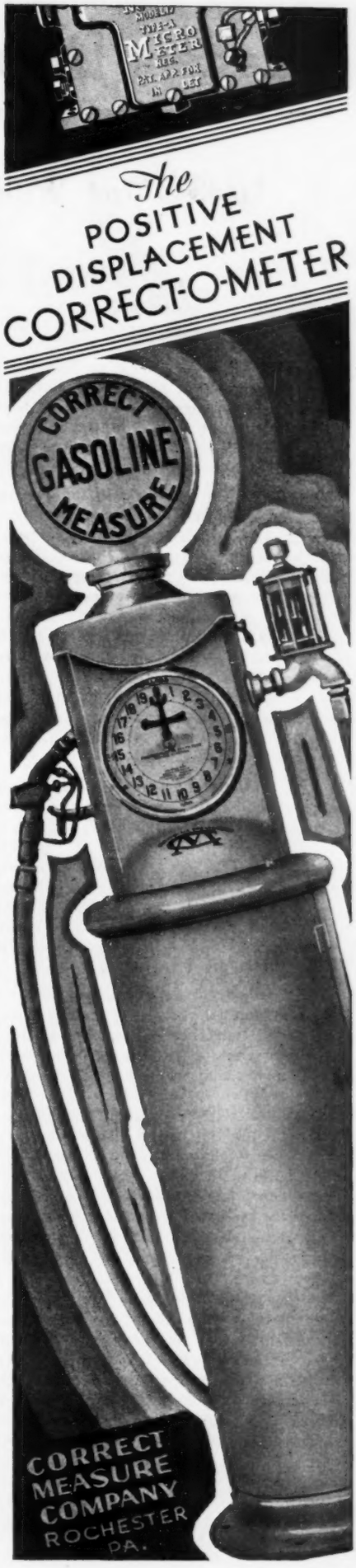
Wax was quiet. Prices for both the 122-124 and 124-126 A.m.p. white crude scale held at a minimum of 2.25 cents a pound, New York.

British-American to Build Refinery at Montreal

TORONTO, March 23.—The British-American Oil Co., of Toronto, has recently announced that it is planning the immediate construction of a refinery at Montreal East. The capacity of the plant is not known, but it will supply the company's trade in the provinces of eastern Ontario and Quebec.

The refinery will be located on the St. Lawrence River, and will be provided with dockage facilities capable of handling the deepest draft vessels which ply the river. The site for this plant was acquired several years ago, but until now has been used for storage of petroleum products by the company.

It is expected that the refinery will be in operation sometime this fall.



Eastern Domestic Markets

Trading Light With Conditions Unsettled

Staff Special
NEW YORK, March 21

GASOLINE markets along the Atlantic seaboard were unsettled during the week ended March 21. The Standard of New Jersey on March 17 met the reduction of tank wagon and service station prices in Delaware that were posted by the Atlantic Refining Co. on March 16. Tank car prices were reduced at New York and Philadelphia.

Regular U. S. Motor was offered in sizeable quantities at New York harbor at 6.25 to 6.50 cents in tank cars. Barge lots were available at 6.25 cents or fractionally lower depending upon the size of the order. Buying has been on narrow lines the past week. Those who have been purchasing from 8000 to 10,000 gallons have been reported taking only about half their usual amounts. Sellers throughout the harbor district have said that prices have reached levels so far below cost that the bottom of the recession is near at hand.

The Philadelphia market eased off slightly under the pressure of the lower prices prevailing at Baltimore and New York harbor. Tank car sales were reported at 6.75 cents. Several major sellers declining to meet prices below 7 cents said they were turning their backs on the gasoline market and were undertaking to sell products which would net them a reasonable profit.

The seaboard markets have been rife with unfounded rumors of a depressing nature. Reports of cargo transactions in the domestic markets have been grossly distorted and unwarranted interpretations put upon market gossip. Notwithstanding the disturbing elements, prices in the Baltimore gasoline market remained unchanged at 6.50 cents for U. S. Motor in tank cars. While jobbers were not buying very far ahead the price structure remained quite firm. The demand for California gasoline along the eastern seaboard was negligible.

Spot sales in the New England markets were few and far between. Gasoline prices for tank car delivery remained at last week's levels in the three major markets. The retail fuel oil market in Providence became unsettled when two major companies reduced prices 1 cent for both grades. Notwithstanding this sectional disturbance, the Boston fuel oil market remained on an even keel throughout the week. However, one company indicated that a new price schedule would be announced next week.

Kerosine prices were a 0.25 to 0.50-cent lower in the Philadelphia and Baltimore markets. Water white kerosine was quoted at 6 cents in those markets as well as at New York.

Grade C bunker oil was in better demand at New York and Boston at the posted prices of $1.05 per barrel. Diesel oil was quoted at $1.85 per barrel at New York harbor.

To Study Neutralizer

CLEVELAND, March 23.—Appointment of a sub-committee on Neutralizers under the committee on refinery equipment of the American Petroleum Institute has been announced.

The sub-committee, of which L. G. Metcalf, Union Oil Co. of California, Los Angeles, Calif., is chairman, will investigate the use of neutralizers and report. The group already has mailed a questionnaire to refining companies.

Members of the committee are: L. W. Parsons, Tidewater Oil Co., Bayonne, N. J.; S. S. Shaffer, Humble Oil & Refining Co., Baytown, Texas; and W. J. Whiteman Standard Oil Co., of Indiana, Whitting, Ind.

PROVIDENCE, R. I.—Albert L. Hiller, formerly with the Sun Oil Co., has joined the Mexican Petroleum Corp. as salesman here.

Gulf Coast Markets

Demand Quiet; Light Oil Prices Recede

Staff Special
NEW YORK, March 21

BULK markets at the Gulf entertained little inquiry from abroad the past week but did receive overtures for a few cargoes for north Atlantic delivery. The reluctance of California sellers to compete with the Gulf suppliers has enabled the latter to take what little spot business has been in the market.

Recent inquiries for gasoline from England and the Continent have not developed into sales. Roumanian competition at least for the present still succeeded in taking the available business.

As a result of lower prices in the field the slight increase in domestic buying has brought out prices fractionally lower than prevailed last week. It was reported that a fair grade of U. S. Motor could be laid down in New York harbor for 5.25 cents. On the basis of this figure, the net back price at the Gulf would be under 5 cents. The higher gravity gasolines were available at lower prices in sympathy with U. S. Motor.

Gas oil and kerosine were fairly steady. Cargo lots of bunker C fuel oil were available a few cents lower than last week's quotations of $0.65. Cased goods were in little demand and prices generally were unchanged.

Venezuela Crude

The market for Venezuela crude was without buyers although a cargo was available at 5 cents a barrel under the last paid price of $0.76, f.o.b. deepwater in the Lake Maracaibo region. According to those conversant with this market, prices for this oil will advance when the agreement between the major producers to cut imports into the U. S. 13 per cent goes into effect. The limited demand for this material both here and abroad, it was said, will necessitate a curtailment of production which will in turn stabilize this market.

Panuco Crude

The market for Panuco crude featured a sale last week at $0.46 per barrel, f.o.b. Tampico. This price when compared with last sale previously made indicates a 2-cent reduction.

Wax Markets

Buying Quiet; Scale Quoted Lower

NEW YORK, March 21.—Wax markets were generally quiet except for a few inquiries for 50 tons of white crude scale for prompt shipment to the United Kingdom. Prices for this grade were down fractionally in the New York market in sympathy with price shading in the New Orleans market. The 125-127 A.m.p. and 128-130 A.m.p. fully refined grades also were quoted an 0.125 cent lower in both markets. Other grades were generally unchanged.

Withholds Final Action On Aluminum Tanks

CLEVELAND, March 24.—The American Petroleum Institute sub-committee on testing aluminum alloy for truck tanks has recommended to the committee on automotive transportation that final action on aluminum tank specifications be deferred until such time as definite provisions can be included on alloys, welding procedure, and mounting methods. Rapid developments are being made in these features of the business.

The subcommittee consists of J. F. Winchester, Standard Oil Co. of New Jersey, chairman; J. C. Bennett, Associated Oil Co.; A. F. Coleman, Standard Oil Co. of New York; F. A. Jones, Shell Petroleum Corp.; H. W. Kizer, The Texas Co., and J. G. Moxey, Atlantic Refining Co.

The recommendation was contained in a report to the committee on automotive transportation on the aluminum tank tests made last summer at New Kensington, Pa. The report was drafted by D. V. Stroup, engineer of the institute, and contained all the data of the tests together with numerous graphs, tables and photographs.

The conclusion of the committee's report follows:

"Based upon the results of these tests, it is concluded, that aluminum alloy consisting of commercially pure aluminum plus 1.25 per cent manganese, known as 3S ½ H and 3SH, is practicable and safe for use in the construction of tanks for automobile gasoline tank trucks, provided the metal is of sufficient thickness to develop strengths equivalent to steel in the thicknesses specified in the 'N. F. P. A. Good Practice for the Construction and Operation of Aitomboeile Gasoline Tank Trucks.' "

400 Companies Asked To Aid Research

CLEVELAND, March 23.—Financial support for the A. P. I.'s research program has been requested by W. C. Teagle, Standard Oil Co. of New Jersey, chairman of the Institute's committee on research Requests have been sent to more than 400 oil companies, asking for contributions to a $100,000 fund for carrying on this work which has been supported by the Institute for the last five years from funds supplied by John D. Rockefeller and the Universal Oil Products Co.

Papers on fundamental research, work which has been supported by the Institute, have been published or approved for publication number more than 140, and it is expected that a considerable number of additional papers will be published this year, which marks the close of the first five-year period. The new program will begin on July 1, next, for one year, and it is expected that the program will be similarly financed from year to year.

Requests sent some weeks ago to 36 of the larger oil companies asking for funds for the new program have resulted in several contributions so far, and more is expected from these companies in addition to those from the 400 other companies to whom the last request was sent. Plans for continuance of certain projects in the research program were to be formulated at meetings to be held by research committees at institute headquarters in New York March 24 and 27. The Advisory Committee on Fundamental Research on Composition and Properties of Petroleum was to meet March 24. The Advisory Committee on Fundamental Research on Occurence and Recovery of Petroleum will meet March 26.

Four new proposals and continuance of Projects 6, 7, 8, 18, 28, 29 and 41 were to be considered by the committee on composition and properties.

Dictionary of Oil Terms Defines 2500 of Them

HOUSTON—A petroleum dictionary for use in oil field, laboratory, oil company office or any other place where oil terms are dealt with, has been prepared by Hollis P. Porter and published by the Gulf Publishing Co., Houston. Mr. Porter is well known as a geologist with the Gypsy Oil Co., and as a member of the American Society of Mechanical Engineers and of the American Petroleum Institute.

The dictionary defines in simple, non-technical language over 2500 terms used in all branches of the oil industry, beginning with the Abel closed tester (Pensky-Martens) for determining flash point of oils and ending with an explanation of the zone of saturation, "an area which contains capillary. . . . . voids . . . . that are full of liquid that will move under ordinary hydrostatic pressure."

Such widely used specification terms as gravity, flash, fire, boiling point, color and viscosity are explained, as well as volatility, distillation, cracking, and hundreds of other terms used in the producing and refining of petroleum. Price of the book is $3.

Build Buenos Aires Refinery

WASHINGTON, March 20.—A Buenos Aires firm has been granted permission by the provisional government to build a refinery in that city according to a report received by the U. S. Department of Commerce. The plant is to have a capacity of 10,000 barrels per day. Crude will be imported.

Vibration Proof!

...drop tight

HEAVY trucks on the highway . . . street cars or subway trains passing nearby . . . where traffic causes severe vibration Jenkins Gasoline Foot and Angle Check Valves remain drop-tight. They are vibration-proof.

Fig. 880, Jenkins Bronze Foot Valve

The disc is specially compounded to resist corrosion. When the suction line is fitted with either a Jenkins Foot Valve or a Jenkins Angle Check Valve, the pump is kept primed, always ready for correct delivery...gasoline in the "see glass" stays at the required level.

Fig. 882, Jenkins Bronze Angle Check Valve

Fig. 881, Jenkins Iron Body Angle Check Valve

The unfailing performance of these valves saves costly excavating for repair or replacement.

Write for Form 146 giving details about these ever-dependable Jenkins. JENKINS BROS., 80 White St., New York, N.Y.

JENKINS

absolutely drop-tight

GASOLINE FOOT VALVES & ANGLE CHECK VALVES

Complete Seaboard Market

(Export Markets for whole year given in OIL HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)

	Prices March 23	Prices March 16	Prices March 9
U. S. MOTOR GASOLINE			
New York harbor	6.25 – 6.75	6.50 – 7.00	6.75 – 7.00
Portland district	*7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Boston district	*7.40 – 7.50	*7.40 – 7.50	*7.40 – 7.50
Providence district	*8.25 – 8.50	*8.25 – 8.50	*8.25 – 8.50
Philadelphia district	6.75 – 7.00	7.00	7.00
Baltimore district	6.50	6.50 – 6.75	6.75 – 7.00
Norfolk district	7.00	7.00	7.00
Charleston district	7.00	7.00	7.00
Savannah district	7.00	7.00	7.00
Jacksonville district	7.00	7.00	7.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	†6.75	6.75 – 7.00	6.75 – 7.00
Philadelphia district	†7.00	†7.00	7.00
Baltimore district	†6.50	6.75	6.75 – 7.00
‡DOMESTIC AVIATION GASOLINE			
New York harbor	10.00 –12.00	10.00 –13.00	10.00 –13.00
Philadelphia	10.00 –12.00	10.00 –12.00	10.00 –12.00
Baltimore	11.00 –12.00	11.00 –13.00	11.00 –13.00
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00
WATER WHITE KEROSINE			
New York harbor	6.00	6.00 – 6.25	6.25 – 6.50
Philadelphia district	6.00	6.25 – 6.50	6.25 – 6.50
Baltimore district	6.00	6.50	6.50
GAS OIL: 28-34 Gravity			
New York harbor	4.50	4.50	4.50
Boston district	4.50	4.50	4.50
FURNACE OIL: 36-40 Gravity			
New York harbor	5.50	5.50	5.50
Boston district	5.50	5.50	5.50
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$1.85	$1.85	$1.85

†Nominal. *Delivered prices.

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

New York Export Market

(Lubricating oils are per gal. in bbls. F.a.s. New York)

	March 23	March 16	March 9
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	23.50 –25.00	23.50 –25.00	23.50 –25.00
Bright stock, No. 6½ color diluted	22.50 –24.00	22.50 –24.00	22.50 –24.00
600 D filtered	22.50 –25.00	22.50 –25.00	22.50 –25.00
600 Warren E filtered	18.00 –21.00	18.00 –21.00	18.00 –21.00
600 stm. refd. unfiltered	14.50 –16.00	14.50 –16.00	14.50 –16.00
650 stm. refd. unfiltered	18.00 –20.00	18.00 –20.00	18.00 –20.00
600 flash steam refined	18.50 –20.00	18.50 –20.00	18.50 –20.00
630 flash, steam refined	24.00 –26.00	24.00 –26.00	24.00 –26.00
RED PARAFFIN OILS (Vis. 100°)			
300 vis. No. 6½ color	17.00 –20.00	17.00 –20.00	17.00 –20.00
250 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.50 –17.50
200 vis. No. 6 color	14.75 –17.00	14.75 –17.00	14.75 –17.00
PALE PARAFFIN OILS (Vis. 100°)			
230 vis. No. 3¾ color	21.50	21.50	21.50
180 vis. No. 3¼ color	18.00 –20.00	18.00 –20.00	18.00 –20.00
100 vis. No. 2¼ color	12.50 –15.00	12.50 –15.00	12.50 –15.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	28.00 –30.00	28.00 –30.00	28.00 –30.00
500 vis. No. 6½ color	26.50 –29.50	26.50 –29.50	26.50 –29.50
400 vis. No. 7¼ color	25.00 –28.00	25.00 –28.00	25.00 –28.00
300 vis. No. 6 color	22.00 –26.00	22.00 –26.00	22.00 –26.00
200 vis. No. 6 color	21.00 –23.50	21.00 –23.50	21.00 –23.50

Wax Market

(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)

NEW YORK	March 23	March 16	March 9
124-126 Yellow crude scale	2.20	2.25	2.25
122-124 White crude scale	2.20 – 2.25	2.25 – 2.375	2.25 – 2.375
124-126 White crude scale	2.20 – 2.25	2.25 – 2.375	2.25 – 2.375
123-125 Fully refined	3.25	3.25	3.25
125-127 Fully refined	3.25 – 3.375	3.375– 3.50	3.375– 3.50
128-130 Fully refined	3.375– 3.50	3.625– 3.75	3.625– 3.75
130-132 Fully refined	3.50 – 3.625	3.625– 3.875	3.625– 3.875
133-135 Fully refined	4.375– 4.50	4.375– 4.50	4.375– 4.50
135-137 Fully refined	4.625– 4.75	4.625– 4.75	4.625– 4.75
NEW ORLEANS			
124-126 Yellow crude scale	2.15	2.15 – 2.25	2.25
122-124 White crude scale	2.20 – 2.25	2.20 – 2.30	2.25 – 2.375
124-126 White crude scale	2.20 – 2.25	2.20 – 2.30	2.25 – 2.375
123-125 Fully refined	3.25	3.25	3.25
125-127 Fully refined	3.25 – 3.375	3.375– 3.50	3.375– 3.50
128-130 Fully refined	3.375– 3.50	3.50 – 3.75	3.50 – 3.75
130-132 Fully refined	3.50 – 3.625	3.50 – 3.625	3.50 – 3.625
133-135 Fully refined	4.375	4.375	4.375

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)

GASOLINE	Prices March 23	Prices March 16	Prices March 9
U. S. Motor	4.75 – 5.00	5.00 – 5.125	5.00 – 5.125
60-62, 400 e.p.	5.25 – 5.375	5.375– 5.50	5.375– 5.50
61-63, 390 e.p.	5.375– 5.50	5.625– 5.75	5.625– 5.75
64-66, 375 e.p.	5.625– 5.875	5.875– 6.00	5.875– 6.00
U. S. Motor, cases (cargoes)	$1.60	$1.60	$1.60
64-66, cases (cargoes)	$1.70 –$1.72	$1.70 –$1.72	$1.70 –$1.72
KEROSINE			
44 water white	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
41-43 prime white	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
Water white, cases (cargoes)	$1.40	$1.40	$1.40
Prime white, cases (cargoes)	$1.30	$1.30	$1.30
GAS & BUNKER OILS			
*26-30 translucent gas oil	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
*30 plus translucent gas oil	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
Grade C bunker oil, for ships' bunkers, per bbl.	$0.90	$0.90	$0.90
Grade C bunker oil, per bbl. in cargoes	$0.65	$0.65	$0.65

*Less than ½ of 1% sulphur.
†Represents sales only.

MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.46 –$0.48	$0.48 –$0.50	$0.50 –$0.52
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.90	$0.90	$0.90
VENEZUELA CRUDE			
F. o. b. deepwater, Lake Maracaibo region	$0.76	$0.76	$0.76

SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)

100 vis. No. 2 unfiltered pale	4.75 – 5.75	4.75 – 5.75	4.75 – 5.75
200 vis. No. 3 unfiltered pale	6.75 – 8.25	6.75 – 8.25	6.75 – 8.25
300 vis. No. 3 unfiltered pale	7.75 – 9.50	7.75 – 9.50	7.75 – 9.50
500 vis. No. 3½ unfiltered pale	8.75 –10.50	8.75 –10.50	8.75 –10.50
750 vis. No. 4 unfiltered pale	10.25 –12.75	10.25 –12.75	10.25 –12.75
1200 vis. No. 4 unfiltered pale	14.00 –16.00	14.00 –16.00	14.00 –16.00
200 vis. No. 5-6 red oil	6.00 – 6.75	6.00 – 6.75	6.00 – 6.75
300 vis. No. 5-6 red oil	7.00 – 7.75	7.00 – 7.75	7.00 – 7.75
500 vis. No. 5-6 red oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
750 vis. No. 5-6 red oil	9.25 –11.50	9.25 –11.50	9.25 –11.50
1200 vis. No. 5-6 red oil	13.00 –15.00	13.00 –15.00	13.00 –15.00

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	March 23	March 16	March 9
Gasoline, U. S. Motor, 53-55 Gravity	4.25 – 5.00	4.25 – 5.00	5.00
Gasoline, U. S. Motor-blends and special cuts	4.50 – 5.25	4.50 – 5.25	5.25 – 5.50
Gasoline, 400 e.p. blend	4.75 – 5.50	4.75 – 5.50	5.50 – 6.00
Gas Oil, 30-34 per bbl.	$0.85 –$0.90	$0.85 –$0.95	$0.90 –$0.95
Diesel Oil, 27 plus, per bbl.	$0.75 –$0.85	$0.75 –$0.85	$0.85 –$0.90
Bunker oil, 14-18 per bbl.	$0.65 –$0.75	$0.65 –$0.75	$0.64 –$0.85
Fuel oil, 14-18 per bbl.	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.95
Kerosine, 38-40 w.w., 125-150 flash, per gal.	4.50 – 5.50	4.50 – 5.50	5.00 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Gasoline, 400 e.p. blend	$1.85 –$2.00	$1.85 –$2.00	$1.85 –$2.00
Kerosine, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	March 23	
	Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	21	18
Gulf to U. K. or Continental ports*	10-11	†10
North Atlantic to U. K. or Continental ports*	9/6	†8/6
Calif. to North Atlantic ports (not E. of N. Y.)	$0.45-$0.50	$0.45-$0.50
Gulf to North Atlantic ports (not E. of N. Y.)**	14-15	15

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl. additional. †Two ports discharged.

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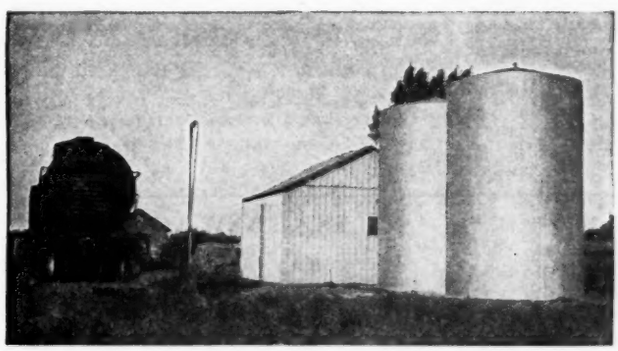

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Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect March 23, 1931, as Posted by Principal Marketing Companies

Latest Changes in Tank Wagon Prices

Gasoline

S. O. New York—T. w. only cut 1.4c Providence, to 12.3c, including 2c tax, **March 16.**

S. O. Kentucky—In this issue, the following points have been discontinued from the tank wagon table: Ashland, Bowling Green and Corbin, Ky.; Clarksdale, Gulfport and Natchez, Miss.

T. w. and s. s. cut from 1 to 2c, generally through territory, March 11. Kentucky points published in tank wagon table were unchanged, except s. s. price at Paducah, which was cut 1c, **March 12.**

In Mississippi, t. w. and s. s. was cut 1c, Jackson, and t. w. only cut 2c, Vicksburg; s. s. unchanged.

In Alabama, Birmingham and Mobile were cut 2c; Montgomery t. w. cut 2c, s. s. 4c.

In Georgia, all points published in this table cut 2c, except Savannah s. s. unchanged.

In Florida, t. w. cut 2c, all points; s. s. cut 2c, Jacksonville and Miami, but unchanged at Tampa and Pensacola.

T. w. and s. s. cut 2c, Birmingham, to 17c and 19c respectively, including 4c state and 1c city tax, **March 11.**

S. O. Indiana—T. w. cut 1.1c, s. s. 2.1c, Mankato, both to 16c, including 3c tax, Feb. 14. T. w. only cut 2.9c, Mankato, to 13.1c, including 3c tax, **March 3.**

Q. D. A. revisions effective **April 1:**

Thru territory, except Chicago, 2c off t. w. price of gasoline on purchases of 1,000 gallons and over per month; in Chicago, 3c off t. w. price on 1,000 gallons and over per month. Discounts formerly were off s. s. prices. These Q. D. A. changes are not reflected in the table in this issue, as prices are those in effect March 23.

Correction: Prices at Indianapolis have been in error in several issues. Correct t. w. price is 15.3c, and s. s. 16.3c, including 4c tax; t. w. price effective March 5, and s. s. effective Feb. 14. Previous changes since general cut of Sept. 29, 1930 were: t. w. 16.9c, Sept. 29; 17.3c, Jan. 3. S. s. Sept. 29, 17.9c; 18.3c, Jan. 3; 16.3c, Feb. 14.

Magnolia Petroleum—T. w. and s. s. cut from 1 to 2.5c, thru Arkansas, **March 12** and **13.** T. w. and s. s. cut 2.5c Fort Smith and Little Rock, **March 13;** and cut 1c, Texarkana, both to 16c, including 4c Texas tax, **March 12.**

T. w. and s. s. cut 1c, Houston and San Antonio, to 14c and 18c respectively, including 4c tax, **March 11.** T. w. and s. s. cut 2c, El Paso, to 14c to 18c, **March 10.**

Continental Oil—T. w. and s. s. up 1c, Denver, to 14c and 17c respectively, including 4c tax, **March 18.**

Corrections: S. s. price cut 1c, Pueblo, to 15c, **March 9;** s. s. unchanged, Cheyenne, at 19c on **March 7** when general 2c cut thru Wyoming went into effect.

S. O. California—Wholesale price cut 1c, thru California, **March 14;** also 1c Portland, and 1.5c at Seattle and Tacoma, **March 14.** Retail prices cut 1 to 1.5c, thru territory, except Reno, **March 14.**

Retail prices cut 1c, San Francisco, Fresno, Portland, Seattle and Tacoma, **March 18.**

Beginning in this issue, tank truck prices to resale trade have been substituted for retail prices. Prices shown in this table are effective **March 20.**

Canada—T. w. and s. s. prices cut 2.5c, Toronto, instead 1.5c, **March 12,** as reported in March 18 issue. Prices are corrected in this issue.

T. w. and s. s. cut 2c, Fort William, **March 14.**

T. w. and s. s. cut 2c, Vancouver, **March 13.**

Aviation Gasoline

S. O. Pennsylvania—T. w. cut 1c, thru Pennsylvania, to 16c, excluding state road tax, **March 16.**

Continental Oil—T. w. up 1c, Denver, to 17c, including 4c tax, **March 18.**

Kerosine

S. O. New York—Kerosine up 1c, Boston, Manchester and Providence, to new price of 11c t. w., **March 16.**

S. O. Kentucky—Kerosine cut 1 to 2.5c, generally through territory, **March 11,** except in Kentucky, **March 12.** In Kentucky, kerosine t. w. cut 1c, Paducah, 1.5c Lexington and 2.5c Covington; Louisville unchanged.

In Mississippi, Alabama and Florida, cut 2c generally.

In Georgia, Atlanta cut 1c, Savannah cut 2c and Augusta and Macon unchanged.

Atlantic Refining—Correction: kerosine t. w. price at Erie should have been 12c, instead of 11c as shown in last week's issue.

S. O. Indiana—Kerosine cut to 7.5c, t. w., St. Joseph, Mo., **Feb. 16.** Unchanged in general cut of March 5.

S. O. Louisiana—Kerosine cut 1 to 2.5c thru territory, March 16. Prices in Louisiana cut 1c generally, except New Orleans unchanged; Little Rock cut 1c; Memphis and Knoxville cut 1.5c; Nashville, 2.5c; and Bristol and Chattanooga unchanged.

Continental Oil—Kerosine cut 1c, Grand Junction, to 16c t. w., **March 7.**

Canada—Kerosine cut 2c, Fort William, to 19.5c, **March 14.**

Kerosine cut 2c, Vancouver, to 22c t. w., **March 13.**

Correction: Kerosine at Toronto cut 2.5c, instead of 1.5c, **March 12,** to 17c.

S.O. NEW JERSEY TERRITORY

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Atlantic City, N. J.	11.5	3	14.5	16.5	11.5
Newark, N. J.	10.5	3	13.5	15.5	10.5
Annapolis, Md.	12	4	16	17	11
Baltimore, Md.	11.2	4	15.2	16.2	9.5
Cumberland, Md.	13	4	17	18	12
Washington, D. C.	11.7	2	13.7	14.7	10.7
Danville, Va.	12.8	5	17.8	18.8	11.8
Norfolk, Va.	11.3	5	16.3	17.3	10
Richmond, Va.	11.7	5	16.7	17.7	10.7
Roanoke, Va.	13	5	18	18	12
Petersburg, Va.	12.3	5	17.3	18.3	11.3
Charleston, W. Va.	12.5	4	16.5	17.5	11.5
Keyser, W. Va.	13.1	4	17.1	18.1	12.1
Parkersburg, W. Va.	11.2	4	15.2	16.2	10.2
Wheeling, W. Va.	12.4	4	16.4	17.4	11.4
Raleigh, N. C.	13.2	5	18.2	19.2	12.2
Charlotte, N. C.	11	5	16	17	11
Hickory, N. C.	13.6	5	18.6	19.6	12.6
Mt. Airy, N. C.	13.5	5	18.5	19.5	12.5
Salisbury, N. C.	13.5	5	18.5	19	12.5
Charleston, S. C.	11.3	6	17.3	18.3	10.3
Columbia, S. C.	13.2	6	19.2	20.2	12.2

Note: 2c per gallon discount off retail t.w. price of gasoline to dealers only thru S. O. New Jersey territory, except Maryland and Washington, D. C. where discount is 3c.

S. O. NEW YORK

	T.W.	Tax	Gasoline Total T.W.	S.S.	Oil T.W.
Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings	11.3	2	13.3	15.3	10
Borough of Richmond	11.7	2	13.7	15.7	12
Albany, N. Y.	12.6	2	14.6	16.6	9.5
Buffalo, N. Y.	11.8	2	13.8	15.8	9
Rochester, N. Y.	12	2	14	16	9
Syracuse, N. Y.	12.8	2	14.8	16.8	9.5
Boston, Mass.	11.5	2	13.5	15.5	11
Augusta, Me.	12.8	4	16.8	18.8	12.8

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon; Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect March 23, 1931, as Posted by Principal Marketing Companies

(S. O. NEW YORK *Continued*)

		Gasoline Total		Oil
	T.W. Tax	T.W.	S.S.	T.W.
Manchester, N. H.	12.4 4	16.4	18.1	11
Burlington, Vt.	13.3 4	17.3	19.3	10
New Haven, Conn.	12.6 2	14.6	16.6	12.6
Providence, R. I.	10.3 2	12.3	15.7	11

Discounts on gasoline: 2c per gal. off posted t. w price to dealers, thru territory, except 3c to dealers inNew York City, effective Feb. 20, 1931.

ATLANTIC REFINING

Pittsburgh, Pa.	12	*	12	17	12
Philadelphia, Pa.	12	*	12	17	12
Allentown, Pa.	12	*	12	17	12
Erie, Pa.	12	*	12	17	12
Scranton, Pa.	12	*	12	17	12
Altoona, Pa.	12	*	12	17	12
Dover, Del.	12	3	15	17	12
Wilmington, Del.	12	3	15	17	12
Boston, Mass.	11.5	2	13.5	15.5	10
Springfield, Mass.	12.5	2	14.5	16.5	10
Worcester, Mass.	12.3	2	14.3	16.3	10
Fall River, Mass.	12.1	2	14.1	15.1	10
Providence, R. I.	11.7	2	13.7	15.7	10
Hartford, Conn.	12.5	2	14.5	16.5	10
New Haven, Conn.	12.6	2	14.6	16.6	10
Atlantic City, N. J.	11.5	3	14.5	16.5	11.5
Camden, N. J.	10.6	3	13.6	15.6	10.6
Trenton, N. J.	11	3	14	16	11
Annapolis, Md.	12	4	16	17	11
Baltimore, Md.	11.2	4	15.2	16.2	9.5
Hagerstown, Md.	12.7	4	16.7	17.7	11.7
Richmond, Va.	11.7	5	16.7	17.7	10.7
Wilmington, N. C.	11.4	5	16.4	17.4	10.4
Brunswick, Ga.	12	6	18	20	**14
Jacksonville, Fla.	11	6	17	19	12

Note: 2c per gal. discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics.

*3-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosine prices include 1c state tax.

S. O. KENTUCKY

Lexington, Ky.	12	5	17	18	12
Louisville, Ky.	11	5	16	17	11
Paducah, Ky.	12	5	17	18	11
Covington, Ky.	11	5	16	17	11
Jackson, Miss.	10	5	15	15	11.5
Vicksburg, Miss.	11	5	16	18	11.5
Birmingham, Ala.‡‡	13	4	17	19	13
Mobile, Ala.‡	13	4	17	19	13
Montgomery, Ala.*	13	4	17	17	13.5
Atlanta, Ga.	12	6	18	20	†12.5
Augusta, Ga.	12	6	18	20	†15.5
Macon, Ga.	12	6	18	20	†13
Savannah, Ga.	12	6	18	20	†12
Jacksonville, Fla.	11	6	17	19	12
Miami, Fla.	12	6	18	20	13
Tampa, Fla.	11	6	17	19	12
Pensacola, Fla.**	12	6	18	20	13

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax

S. O. OHIO

Ohio statewide	12	4	16	17	13
Defiance, Hancock and Marion counties	12	4	16	16	13

Note: Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

S. O. INDIANA

Chicago, Ill.	11	3	14	15	9
Decatur, Ill.	11.4	3	14.4	15.4	9
E. St. Louis, Ill.	10.7	3	13.7	14.7	8.2
Joliet, Ill.	11.4	3	14.4	15.4	9
Peoria, Ill.	11.4	3	14.4	15.4	9
Quincy, Ill.	11.2	3	14.2	15.2	8.8
Springfield, Ill.	11.4	3	14.4	15.4	9
Indianapolis, Ind.	11.3	4	15.3	16.3	10.1
Evansville, Ind.	11.1	4	15.1	16.1	9.9
South Bend, Ind.	11.4	4	15.4	16.4	10.2
Detroit, Mich.	11.8	3	14.8	15.8	10.7
Grand Rapids, Mich.	11.7	3	14.7	15.7	10.6
Saginaw, Michigan	11.9	3	14.9	15.9	10.8
Green Bay, Wisc.	11.6	2	13.6	14.6	9.4
Madison, Wisc.	11.3	2	13.3	14.3	9.1
Milwaukee, Wisc.	11.1	2	13.1	14.1	8.9
La Crosse, Wisc.	12.2	2	14.2	15.2	10
Minneapolis, Minn.	12.2	3	15.2	16.2	9.9
Duluth, Minn.	12.5	3	15.5	16.5	9.9
Mankato, Minn.	10.1	3	13.1	16	9.7
Des Moines, Ia.	11.5	3	14.5	15.5	9.3
Davenport, Ia.	11.5	3	14.5	15.5	9.3
Sioux City, Ia.	11.1	3	14.1	15.1	8.9
Mason City, Ia.	11.5	3	14.5	15.5	9.3
St. Joseph, Mo.	†11.5	2	13.5	14.5	7.5
Kansas City, Mo.	†11.9	2	13.9	14.9	7.6
St. Joseph, Mo.	†11.5	2	13.5	14.5	8.1
Fargo, N. D.	13	3	16	16	11.9
Grand Forks, N. D.	14.2	3	17.2	18.2	12.2
Minot, N. D.	13.9	3	16.9	17.9	11.9
Pierre, S. D.	12	4	16	17	10.4
Huron, S. D.	12.3	4	16.3	17.3	10.7
Wichita, Kans.	9.8	3	12.8	13.8	7.8
Bartlesville, Okla.	9.5	4	13.5	16.5	7.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago, which see below) on tank truck deliveries of gasoline, figured from the service station price is 3c for 500 gals. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1000 gals. per month 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. NEBRASKA

Omaha, Neb.	11.25	4	15.25	17.25	9.25
McCook	12.75	4	16.75	18.75	10.75
Norfolk	11.75	4	15.75	17.25	9.75
North Platte	12.75	4	16.75	18.75	10.5
Scottsbluff	12	4	16	16	10.25

Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only discount applying only at normal points.

S. O. LOUISIANA

	Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	T.W.
Little Rock, Ark.	11	6	17	18	11
Alexandria, La.	11	*6	17	18	†12
Baton Rouge, La.	11	5	16	17	†12
New Orleans, La.	11	*6	17	18	†12
Lake Charles, La.	11	*6	17	18	†12
Shreveport, La.	11	5	16	17	†12
Lafayette, La.	11	*6	17	18	†12
Bristol, Tenn.	14	5	19	20	14
Chattanooga, Tenn.	13	5	18	19	13
Knoxville, Tenn.	13.5	5	18.5	19.5	13.5
Nashville, Tenn.	12.5	5	17.5	18.5	12.5
Memphis, Tenn.	11	5	16	17	11

Note: Discounts in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail t.w. price.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

MAGNOLIA PETROLEUM

			Gasoline Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Muskogee, Okla.	8	4	12	15	9
Oklahoma City	6	4	10	12	9
Tulsa, Okla.	8	4	12	15	9
Fort Smith, Ark.†	11	4	15	16	11
Little Rock, Ark.	11	6	17	18	11
Texarkana, Ark.*	12	4	16	16	11
Dallas, Tex.	11	4	15	18	11
Fort Worth, Tex.	11	4	15	18	10
Houston, Tex.	10	4	14	18	11
San Antonio, Tex.	10	4	14	18	10
El Paso, Tex.	10	4	14	18	12

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

CONTINENTAL OIL

Denver, Colo.	10	4	14	17	12.5
Pueblo, Colo.	9	4	13	15	12
Grand Junc., Colo.	14	4	18	19	16
Casper, Wyo.	11	4	15	18	10
Cheyenne, Wyo.	12	4	16	19	11.5
Butte, Mont.	14	5	19	22	16
Helena, Mont.	15	5	20	23	16
Salt Lake City, Utah.	14.5	3.5	18	21	16
Boise, Ida.	*16.5	5	21.5	..	18
Twin Falls, Ida.	†16.5	5	21.5	..	18
Albuquerque, N. M.	11	5	16	20	14

***Less 1c on gasoline at time of delivery.**
†Less 1.5c on gasoline at time of delivery.

S. O. CALIFORNIA

	Tax	Tank Truck (Resale)	Posted Wholesale	T.W.
Phoenix, Ariz.	5	17.5	20.5	20
Los Angeles, Cal.	3	7.5	13.5	15.5
Fresno, Cal.	3	9	15	17
San Francisco, Cal.	3	9	15	15.5
Reno, Nev.	4	16	22	19
Portland, Ore.	4	12.5	18.5	16.5
Seattle, Wash.	3	9	15	16.5
Spokane, Wash.	3	16	22	20.5
Tacoma, Wash.	3	9	15	16.5

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

			Gasoline Total		Oil
	T.W.	Tax	T.W	S.S	T.W.
ONTARIO					
Toronto	16	5	21	24.5	17
Ottawa	17	5	22	25.5	18
North Bay	20	5	25	30.5	21
Fort William	19.5	5	24.5	28	19.5
Border Cities, including Windsor	16	5	21	24 5	15
MANITOBA					
Winnipeg	18	5	23	27	18.5
SASKATCHEWAN					
Regina	22	5	27	31	22
ALBERTA					
Edmonton	23	5	28	31.5	23
Calgary	19.5	5	24.5	28	19.5
BRITISH COLUMBIA					
Vancouver	21	5	26	28	22
QUEBEC					
Montreal	17	5	22	25.5	18
Quebec City	19	5	24	27.5	20
Three Rivers	19	5	24	27.5	20
NEW BRUNSWICK					
St. John	18.5	5	23.5	27.5	20.5
Moncton	18.5	5	23.5	27.5	20.5
NOVA SCOTIA					
Halifax	18.5	5	23.5	27.5	20.5
PRINCE EDWARD ISLAND					
Charlottetown	18.5	5	23.5	27.5	20.5

Note: In districts surrounding these points 1c additional is added to city price.

NAPHTHA PRICES

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	10.7	12.7	14.2
Detroit	13.4	14.9	15.7
Kansas City	†11.9	†13.4	†14.2
Milwaukee	**12.4	*15.9	*16.7
Minneapolis	**16.7	**18.2	**19
St. Louis	11.6	13.1	13.9
New York		14	20
Boston		17	20

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b.refinery or seaboard terminal)

New York harbor	10.00
Philadelphia district	10.00
Providence	10.50

Tank Wagon or Steel Barrels

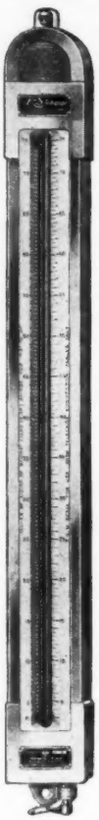
New York City	14
Syracuse	17
Rochester	18
Buffalo	16
Providence	17
Boston	17
Bridgeport	15
Newark	16
Philadelphia	14
Lancaster	17
Altoona	17
Baltimore	17

Note: 2c off above t.w. prices to large buyers in some instances.

(*Continued on Page 108*)

THE HYDROSTATIC DISTANT READING GAUGE

SAVINGS
WILL BE WELCOME IN
1931



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(Incorporated under the Laws of the State of Texas, 1916)

DALLAS, TEXAS

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Nature of a Patent; Disclosure in a Chemical Patent; the invention, its date and nature; nature of a patentable process; anticipation by prior uses; by prior publication; Nature of a Valid process claim in the patent; infringement of valid process claim; Permissible amendments; amending patent after it issues; double patenting and the joinder of inventions; assignments, licenses and royalties; contests between rival claimants; patent suits and patent evidence and some other more minor subheads.

Actions taken in courts are cited with complete references to the legal documents involved, with quotations of the statements pertinent to the subject under discussion. Each chapter is introduced with a brief outline of the subject, and the remainder is devoted to quotations which definitely answer questions on which information should be available to those holding patents or about to apply for them.

The present complicated situation with regard to patents on refining processes, especially cracking, makes this book particularly valuable to every refiner, oil attorney, chemist, etc. 420 pages.

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Crude Oil Prices (in Effect March 23, 1931)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Bradford—Alleghany district (posted by Tide Water Pipe Co., Ltd.) (Effective Nov. 12, 1930) $2.15
Penna. Grade Oil in National Transit Lines (Effective Nov. 12, 1930) *1.85
Penna. Grade Oil in Southwest Penna. Pipe Lines (Effective Nov. 12, 1930) 1.80
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective Nov. 12, 1930) 1.70
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective Nov. 12, 1930) 1.45
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective March 11, 1931) 0.80
Somerset oil in main system of Cumberland Pipe Line (posted by Ashland Refining Co.) (Effective March 6, 1931) $0.75
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929) $0.60
*Oil run prior to July 1, 1929 is 5c less per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective March 7, 1931) $0.70

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective March 5, 1931, same gravity and price schedule as Stanolind posts in Oklahoma, Kansas and North Texas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (March 13, 1931) $0.75

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective March 6, 1931

Wooster	$0.99	Princeton	$0.80
Lima	0.90	Illinois	0.80
Waterloo	1.20	West Kentucky	0.75
Indiana	0.50		

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Effective Oct. 28, 1930

Petrolia $1.50
Oil Springs 1.57

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of *Stanolind Crude Oil Purchasing Co. (In Oklahoma, Kansas, North and North Central Texas)

Effective March 5, 1931

Below 29	$0.43	35-35.9	$0.57
29-29.9	0.45	36-36.9	0.59
30-30.9	0.47	37-37.9	0.61
31-31.9	0.49	38-38.9	0.63
32-32.9	0.51	39-39.9	0.65
33-33.9	0.53	40 and above	0.67
34-34.9	0.55		

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

On March 5, 1931 these crude purchasers met above prices: Continental Oil Co., Eason Oil Co., Mid-Continent Petroleum Corp., Standard Oil Co. of Kansas, Tidal Refining Co., White Eagle Oil & Refining Co.

On March 10, 1931, these met Stanolind: Humble and The Texas Co.

Humble Oil & Refining Co.

Effective March 10, 1931

In North Texas, Ranger, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona fields, all in Texas, same prices as Stanolind, which see.

Magnolia Petroleum Co.
(In Oklahoma, Kansas, North and East Central Texas)

Effective March 5, 1931

Magnolia posts same prices in all three states as Stanolind, except these lower grades:

Below 26	$0.40	27-27.9	$0.42
26-26.9	0.41	28-28.9	0.43

Carter Oil Co.
(Oklahoma and Kansas)

March 10, 1931, same prices as Stanolind, which see.

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective March 10, 1931

Hutchinson and Carson Counties:

Below 35	$0.38	38-38.9	0.46
35-35.9	0.40	39-39.9	0.48
36-36.9	0.42	40 and above	0.50
37-37.9	0.44		

Gray County:

Below 35	$0.43	38-38.9	$0.51
35-35.9	0.45	39-39.9	0.53
36-36.9	0.47	40 and above	0.55
37-37.9	0.49		

Above prices met by Magnolia and The Texas Co. on March 10 in Hutchinson, Carson and Gray counties.

Wheeler County: Posted by Magnolia Pet. Co. Effective Apr. 10, 1930. Humble withdrew Wheeler county postings Apr. 10, 1930.

Below 30	$0.755	37-37.9	$1.11
30-30.9	0.805	38-38.9	1.145
31-31.9	0.855	39-39.9	1.18
32-32.9	0.905	40-40.9	1.215
33-33.9	0.955	41-41.9	1.25
34-34.9	1.005	42-42.9	1.285
35-35.9	1.04	43-43.9	1.32
36-36.9	1.075	44 and above	1.355

WEST TEXAS and NEW MEXICO

Humble Oil & Refining Co.

Effective March 10, 1931

Pecos and Winkler, (West Texas) and Lea County, N. M., all grades $0.40
Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, all grades $0.35

March 10, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble. Oct. 28, Magnolia same prices in Winkler, Crane, Upton, Howard, Glasscock and Mitchell counties.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

All Effective March 10, 1931

Mirando (Jan. 15, 1931) $0.69
Salt Flat 0.60
Darst Creek 0.60
Pettus, Bee County 0.95

(Posted by Magnolia Petroleum Co.)

Corsicana Heavy $0.45
Luling 0.45

(Posted by The Texas Co.)

Markham $0.50

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine, Cotton Valley, Sarepta and Carterville.

Effective March 10, 1931

Below 29	$0.43	35-35.9	$0.57
29-29.9	0.45	36-36.9	0.59
30-30.9	0.47	37-37.9	0.61
31-31.9	0.49	38-38.9	0.63
32-32.9	0.51	39-39.9	0.65
33-33.9	0.53	40 and above	0.67
34-34.9	0.55		

Smackover, all grades $0.45
Bellevue 0.45
*Urania, La. (Oct. 30, 1930) 0.75
†East El Dorado (Calion) 0.45

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

March 10, 1931, The Texas Co. same schedule in Louisiana as Standard.

March 10, Magnolia met Standard schedule in Louisiana-Arkansas fields except it posts the same low grades in La.-Ark. as in Mid-Continent.

Stephens, Arkansas
Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective March 10, 1931

Below 29	$0.38	29 and above	$0.41

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Jan. 14, 1931

Grades A	$0.80	32-32.9	$0.85
Grades B:		33-33.9	0.87
Below 25	0.69	34-34.9	0.89
25-25.9	0.71	35-35.9	0.91
26-26.9	0.73	36-36.9	0.93
27-27.9	0.75	37-37.9	0.95
28-28.9	0.77	38-38.9	0.97
29-29.9	0.79	39-39.9	0.99
30-30.9	0.81	40 and above	1.01
31-31.9	0.83		

On Oct. 28, The Texas Co. posted same prices on Grades A and B Gulf Coast crude as Humble.

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland, Refugio county, and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity: 25° and below, at 60° F; Viscosity: not less than 100 seconds at 100° F. Saybolt.
Sulfur: not over .4%.

Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

Crude Price Changes

SAN FRANCISCO.—On March 20 Standard Oil Co. of California reduced all grades of California refinable crude which it purchases in amounts ranging from 1 to about 45 cents, or an average of 10 cents per barrel. This follows a cut of from 5 to 80 cents March 10 and was made to meet a similar reduction posted March 15 by the Union Oil Co. of California, and one posted March 18 by the Associated Oil Co.

For new prices, see crude price table on page 105 of this issue.

Retires After 39 Years

GRAND RAPIDS, Mich., March 21.—Frank R. Burnett, who has been district sales manager for the Sun Oil Co. in western Michigan for 22 years, will retire on April 1. He plans to remain in Grand Rapids indefinitely.

Mr. Burnett has been engaged in the oil business approximately 39 years. Prior to his coming to Michigan he represented another oil company in Egypt and south Africa for a number of years.

Mississippi Jobber Sells

PASCAGOULA, MISS.—The Mutual Oil Co., with a bulk plant here, recently sold its properties to the Standard Oil Co. of Kentucky.

CHICAGO—The Pure Oil Co. here has appointed the Freitag Advertising Agency, Inc., Atlanta, as its advertising counsel, effective April 1. The Pure has been represented by this agency for some time in southeastern states.

RICHMOND, Va.—The Saunders Gas Service, Inc., has been capitalized here at $5000, to deal in gasoline, oils and automobile supplies. J. Edwin Saunders, of Richmond, is president. H. C. Eacho is counsel.

TULSA—Carl E. Campbell, western division lubrication engineer at Tulsa for the Shell Petroleum Corp., has been promoted March 20 to regional lubrication sales manager, with headquarters in the Shell Bldg., St. Louis.

R. L. Buckles, sales engineer in Kansas, has been made office assistant to Mr. Campbell at St. Louis.

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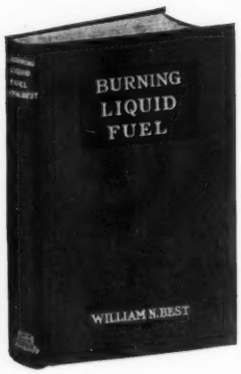

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Crude Oil Prices (in Effect March 23, 1931)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS

(Posted by Midwest Refining Co.)

(Salt Creek prices effective March 5, 1931)

Salt Creek, below 29°		$0.43
" " "	29-29.9	0.45
" " "	30-30.9	0.47
" " "	31-31.9	0.49
" " "	32-32.9	0.51
" " "	33-33.9	0.53
" " "	34-34.9	0.55
Salt Creek	35-35.9	0.57
" "	36-36.9	0.59
" "	37 and above	0.61

(Posted by Ohio Oil Co. and Midwest Refining Co.)

Elk Basin	$0.90
Grass Creek light	0.90
Big Muddy	0.65
Lance Creek	0.98
Rock Creek	0.66
Mule Creek	1.20
Rex Lake	1.10
Pondera	1.45
†Osage	0.50
†Cat Creek, Mont.	0.90
Sunburst, Mont.	1.55
†Hogback, N. Mex. (March 7, 1931)	1.05

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin. Others are prices of Ohio Oil Co.

STANDARD OIL CO. OF CALIFORNIA

Signal Hill, Seal Beach, Alamitos Heights, Huntington Beach, Inglewood, Olinda-Brea Canon, Athens-Rosecrans-Dominguez, Torrance, Richfield, Whittier, LaHabra, Montebello, Coyote Hills and Santa Fe Springs	Playa Del Rey	Elwood Terrace	Newhall, McKittrick, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills, Lost Hills, Coalinga and Wheeler Ridge
Gravity		F.O.B. Ship	
14-19.9 $0.65	$0.56		$0.55
20-24.9 .66	.57		.56
25-29.9 .67	†		.57
30-34.9 .68		*$0.68	.58
35-39.9 .69		.69	
40-40.9 .70		.70	

*Beginning with 34-34.9 gravity.

†Subject to field gathering charge of 5c per barrel.

Posted by Union Oil Co. of California

Effective March 15, 1931

Santa Paula (Ventura) Gravity		Orcutt (Santa Maria) Gravity		Kettleman Hills Gravity		Posted by Associated Oil Co. Effective March 18, 1931 Ventura Avenue Gravity	
14-23.9	$0.65	14-19.9	$0.55	30-34.9	$0.58	22-24.9	$0.59
24-29.9	.66	20-24.9	.56	35-39.9	.59	25-29.9	.60
30-33.9	.67	25-26.9	.57	40 and up	.60	30-34.9	.61

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	March 23	March 16
Soda Ash Light 58% bags, cwt.	$1.20-1.38	$1.20-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.20	$0.90-1.20
Caustic Soda 76% solid, cwt.	$2.25-2.50	$2.25-2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11.00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10-4.00
Liquid Chlorine, tank cars, wks, lb.	1.75	1.75

Compounders' Supplies

	March 23	March 16
Vegetable Oils		
Linseed carloads, spot, lb.	9.40	9.60
Tanks, spot	8.80	9.00
Soya Bean, Tank, coast, lb.	7.10	7.10
Oleic Acid		
Distilled, tanks, lb.	7.50	7.50
Distilled, bbls, lb.	8.375	8.375
Saponified, tanks, lb.	7.75	7.75
Saponified, bbls, lb.	8.625	8.625
Lard Oils		
Prime Winter Strained, lb.	12.50	12.50
Extra Winter Strained, lb.	9.50	9.50
Extra, lb.	9.25	9.25
Extra No. 1, lb.	8.75	8.75
No. 1, lb.	8.50	8.50
No. 2, lb.	8.25	8.25
Tallow oil, lb.	8.00	8.00
Neatsfoot Oil		
Pure, bbls, lb.	11.00	11.00
Extra, bbls, lb.	9.00	9.00
No. 1 bbls, lb.	8.75	8.75
Cold Pressed, lb.	15.25	15.25
Fish Oils		
Menhaden Oil Light Pressed, gal.	36–38	36–38
Light Pressed, tank cars, N. Y., gal.	28–30	28–30
Yellow bleached, gal.	39	39
Whale, extra winter bleached, gal.	80	80
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	42	42
Steam, distilled turpentine, Savannah, gal.	40	40
Gum turpentine, N. Y., gal.	42.50-43.50	42.50-43.50
Gum turpentine, f. o. b. cars Savannah, gal.	37.50-38.50	37.50-38.50
Wood Rosin, N. Y., bbl.	$5.20	$5.20
Wood Rosin F, Savn'h, bbl.	$5.50	$5.50
Gum Rosin B, N. Y., bbl.	$4.80	$4.65
Gum Rosin B, f. o. b. cars Savannah, bbl.	$4.05	$3.90
Rosin oil, pure, gal.	54	56
Rosin, oil, compounded, gal.	48	50
Pine Tar		
Kiln burnt, bbl.	$13.00-14.00	$13.00-14.00
Retort, bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured Formula 5, in bbls., per gal	46–48	46–48

Carib Holders Offered Rights to Stock

NEW YORK, March 21.—Stockholders of Carib Syndicate, Ltd., of March 7 record, have been offered right until March 28 to subscribe for one new share of common stock at $1 a share for each 10 held. Par value of the shares is 25 cents. The company has outstanding 525,000 shares.

Receipts from the subscription are to be used in carrying the company until a definite program of development can be worked out. The company owns a 25 per cent interest in the Barco Concession in Colombia, reinstatement of which has been recommended by the president and minister of industries of Colombia. Gulf Oil Corp. owns a 75 per cent interest in the Barco Concession.

White Star to Build Rectifiers

TRENTON, Mich., March 23.—Construction has begun on two complete rectifying units at the refinery of the white Star Refining Co., here, the contract having been awarded to the Foster Wheeler Corp. of New York.

The contract covers two debutanizer-stabulizer units, which are designed to handle 130,000 gallons of raw pressure distillate per day. The construction work is underway, and the units are scheduled to begin operation April 30, 1931.

SACRAMENTO, CAL.—Joseph E. Pendergast has been promoted from agent at Rocklin, Cal., for the Shell Oil Co. to head of the asphalt department at Sacramento.

More than 1,150,000 pounds of paraffin wax were imported by Ecuador during the first half of 1930 from the United States. This country also shipped 10,500 pounds of petrolatum, while its nearest competitor, Germany, shipped 7000 pounds.

Oil Stocks and Finances

Cities Service Reports Gain in Oil Sales

CLEVELAND, March 21.—Cities Service Co. reports sales of retail subsidiaries increased approximately 27.5 per cent in 1930. Gasoline sales were 30 per cent larger than in 1929. Sales of industrial and domestic fuel oils increased the same percentage. Sales of motor oils, greases and other lubricating oils increased more than 16.5 per cent, the company, reported.

Sales of the company's anti-knock gasoline, Koolmotor, increased more than 55 per cent over 1929 sales, the company announced.

Cities Service reports that earnings increased 15.7 per cent in the 12 months ended Feb. 28 over the preceding 12-month period, to $54,791,965. Net to common stock and reserves increased 12.5 per cent to $37,264,593. Net earnings in February were $3,259,498, compared with $5,021,357 in February, 1930.

Rockefeller Board Sells New Jersey Stock

NEW YORK, March 21.—The General Education Board, established by John D. Rockefeller to promote education, disposed of 285,680 shares of Standard Oil Co. (N. J.) stock in its fiscal year ended June 30, 1930, its annual report reveals. At the beginning of the fiscal year it held 437,680 shares. The 152,000 remaining shares of New Jersey stock were carried on the books at $4,301,555, or $28.30 a share.

Other oil stocks held by the board were: 163,460 shares of Ohio Oil Co. $25 common, carried at $57.84 a share; 40,955 shares of $100 Ohio Oil preferred, carried at $103.50 a share; 315,414 shares of South Penn Oil Co. $25 common, carried at $23.33 a share, and 92,764 shares of Standard Oil Export Corp. $100 preferred, carried at $99 a share.

S. O. Colorado Sued

DENVER, March 20.—Standard Oil Co. of Colorado has been sued for $1,000,000 by L. W. Davis, former employe and stockholder. Davis charges breach of contract. He alleges he made a deal with the Five Square Oil & Gas Co. which the Standard of Colorado later carried out without his knowledge. He also alleges the company owes him $200 for one month's service and 8999 shares of stock. He claims he was promised 100,000 shares of stock for special services.

BALTIMORE—Sherwood Bros., Inc., has filed an injunction suit against Shell Eastern Petroleum Products, Inc., charging unfair trade practices in that some Sherwood Bros. dealers have been induced to violate their agreements.

Richfield Omits Meeting; Appraisal Started

NEW YORK, March 21.—The annual meeting of Richfield Oil Co. was not held because the company is in a receivership. March 19 would have been the date.

An appraisal of Richfield assets is being undertaken by Stone & Webster Engineering Corp. pending report on which the preferred stockholders' protective committee is withholding comment on the recent offer of Cities Service Co. to exchange two of its preference B shares and one common share for each five shares of Richfield preferred.

The offer for an exchange of preferred stock followed an exchange of Cities Service common for Richfield common up to 500,000 shares.

Bradford M. Melvin has resigned as general counsel of Richfield and is returning to private law practice in San Francisco.

Royal Dutch Calls 5% Debentures

NEW YORK, March 21.—Royal Dutch Co. May 4 will redeem at 102½ and interest the outstanding 50-year 5 per cent debentures issued last year. The principal amount is 28,500,000 Dutch florins, approximately $11,400,000.

The debentures were issued in exchange for 4½ per cent priority shares. After that issue the company issued $40,000 of 4 per cent debentures, Series A, at 89½ and interest.

Dividend Changes

Recent changes in dividend rates of oil companies or omissions of dividends include:

Borne Scrymser Co.—Omitted. Had paid $1 semi-annually.

Mountain & Gulf Oil Co.—Rate reduced to 1 cent a share a quarter. Preceding quarter it paid 1½ cents, and before that 2 cents a quarter.

Mountain Producers Corp.—Rate reduced to 25 cents a quarter. Previously paid 40 cents a quarter.

New Bradford Oil Co.—Rate reduced to 7 cents a share Preceding quarter it paid 10 cents, and before then 12½ cents.

Phillips Petroleum Co.—Dividend omitted. President Frank Phillips said:

"Because of demoralized prices of petroleum and its products, which are the lowest since organization of the company in 1917, an operating loss for the last quarter of 1930 is shown, in addition to heavy shrinkage in inventory values. It is therefore deemed to the best interest of the stockholders to conserve cash until conditions improve and the program now under way is completed, which should result in ultimate larger profits under normal conditions than could otherwise be obtained."

Plymouth Oil Co.—Rate reduced to 25 cents a quarter from 50 cents.

Salt Creek Consolidated Oil Co.—Rate reduced to 7 cents a quarter from 40 cents.

South Penn Oil Co.—Rate reduced to 25 cents a quarter from 50 cents.

Financial Notes

Gulf Oil Corp.—J. Frank Drake, chairman of Pullman, Inc., elected president to succeed W. L. Mellon, elected chairman. F. A. Leovy, former vice-president, elected vice-chairman.

Phillips Petroleum Co.—H. M. Addinsell, Harris, Forbes & Co., New York, and Samuel Roberts, Chatham-Phenix National Bank & Trust Co., New York, are added to board of directors.

Prairie Pipe Line Co.—Henry Lockhart, Harry Bronner, and Edward T. Tinker, all of New York, elected directors. F. M. Wilhelm resigned as director. Other directors and officers were re-elected.

Sun Oil Co.—R. E. Lamberton resigned as director. Other directors re-elected at annual meeting. Officers subsequently were re-elected.

Utah Oil Refining Co.—Thomas A. Dines, president of Midwest Refining Co. elected president to succeed the late John C. Howard. Utah Oil is subsidiary of Midwest.

* * *

These companies have re-elected directors and officers:

Barnsdall Corp.; Indiana Pipe Line Co.; Rio Grande Oil Co.; Signal Oil & Gas Co., and Standard Oil Co. of Kansas.

A big fleet of *modern* cars;
4 large, privately owned shops to keep them in condition;
18 years' specialized experience.
SPECIAL *services to shippers, described on request. Address*

NORTH AMERICAN CAR CORPORATION
327 S. LaSalle St., Chicago, Ill.
Tank Cars for Lease. Domestic and Export Terminals Chicago, Tulsa, New Orleans.

SKILLED SUPERVISION

Guarantees the Quality of Gulf Products

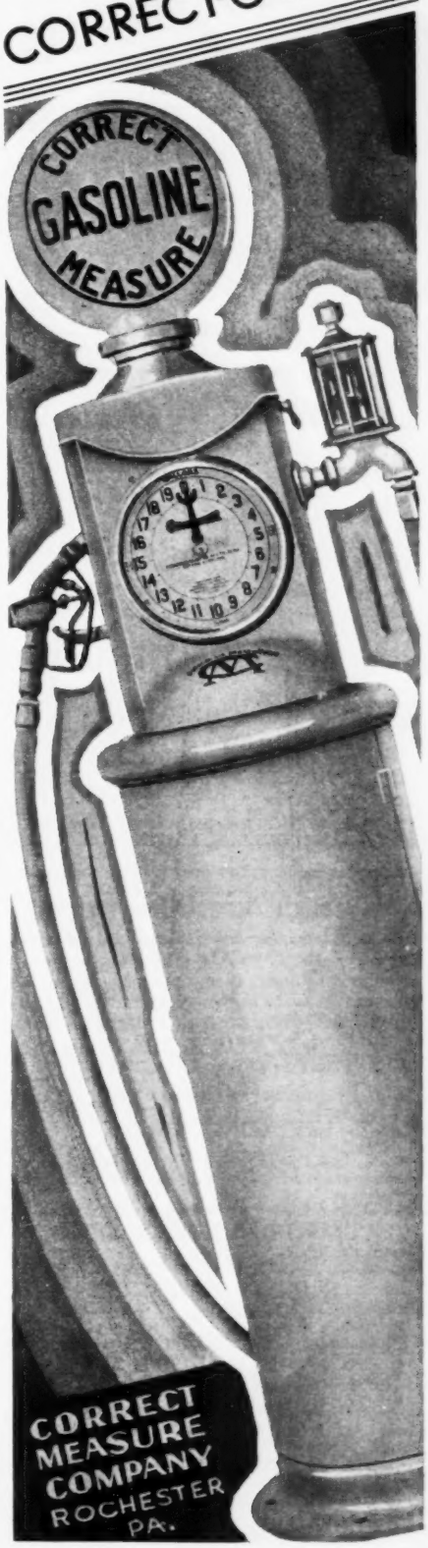
COASTAL AND PARAFFINE CRUDES
GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices:
PITTSBURGH, PA.

District Sales Offices: New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Silent V Belt Drive
...another feature of the
CORRECT-O-METER



Transactions in Oil Shares on New York Stock Exchange

1929 High	1929 Low	1930 High	1930 Low	Listed Shares	Par Value	Company	Div. Rate	Last Paid	Transactions Week Ended March 21 Sales	First	High	Low	Last	Change§
42⅝	17½	42¼	16½	922,075	N.P.	Amerada Corp	50cQ	Jan. 30, 31	6,200	18⅜	23	18	21⅜	+ 2⅞
64¾	12½	37	5⅛	209,180	N.P.	American Republics Corp	....	.....	1,300	11	11¼	10	11	0
47¼	34½	51	30	2,240,000	$25	Associated Oil	50cQ	Dec. 31, 30	150	31	31	31	31	0
77⅛	30	51¾	16⅜	2,683,868	25	Atlantic Refining Co	‡25cQ	Dec. 15, 30	10,600	19	20⅛	19	19½	— ⅜
49⅛	20	34	8⅝*	2,257,108	25	Barnsdall Corp. A	25cQ	Feb. 16, 31	11,500	11⅞	12¼	11⅝	12¼	+ ¼
34½	25	35	21	2,060,966	25	California Petroleum Corp	....	Jan. 1, 29	.....	....	....	....	....	.....
32⅞	12½	20⅝	8¾	1,444,970	N.P.	Colonial Beacon Oil Co	....	.....	1,700	9⅛	9⅛	9	9	— ⅛
37⅝	18	30½	7¾	4,610,258	N.P.	Continental Oil (Delaware)	....	.....	29,000	10	10	9⅜	9⅝	— ⅛
94¾	42¼	71½	22⅜	410,857	$100	General Asphalt Co	$1Q	Dec. 15, 30	4,100	36¾	41⅛	36¾	40½	+ 4
109	26	116⅞	29¼	250,000	100	Houston Oil	....	.....	18,500	53¼	57⅞	52½	56⅞	+ 3⅜
..	..	10¼	6⅜	.....	..	Houston Oil, new	....	.....	13,300	11⅜	12⅜	11⅜	12½	+ 1
53	13⅛	28⅝	3	699,066	10	Indian Refining	....	Dec. 15, 20	13,900	3¾	4	3¾	4	+ ¼
51¼	11½	27¾	3½	568,816	10	do certificates	....	.....	.....	....	....	....	....	.....
38⅜	16½	29½	21¼	3,994,150	N.P.	Lago Oil & Transport	....	Aug. 2, 27	.....	....	....	....	....	.....
18	7	12	3½	1,187,701	N.P.	Louisiana Oil Refining	....	.....	2,900	4	4⅛	4	4	0
100¼	80	89½	60	40,000	$100	do pfd	$1.62½Q	Feb. 14, 31	.....	....	....	....	....	.....
18½	5⅞	10⅜	1¾	330,000	N.P.	Maracaibo Oil Exploration	....	.....	100	2½	2½	2½	2½	+ ¼
295	176	182	150	459,428	$100	Mexican Petroleum	$3Q	Jan. 20, 31	.....	....	....	....	....	.....
105	102	100	100	120,000	100	do pfd	$2Q	Jan. 20, 31	.....	....	....	....	....	.....
69⅜	9¼	37	9¾	1,244,383	N.P.	Mexican Seaboard Oil	....	Oct. 15, 24	39,200	17¼	18⅞	16½	18½	+ 1½
39⅛	22⅜	33	11	1,899,138	N.P.	Mid-Continent Petroleum	50cQ	Feb. 16, 31	7,400	13⅜	14½	12⅝	12¾	— ⅝
3⅝	¾	2½	¾	908,171	N.P.	Middle States Oil ctfs	....	.....	.....	....	....	....	....	.....
..	..	32	16	6,708,086	N.P.	Ohio Oil Co	50cQ	Dec. 15, 30	11,400	15½	16	14⅞	15	— ⅛
69	40¼	64¼	42	1,000,000	$50	Pan American Petrol. & Trans	....	Oct. 20, 27	100	34	34	34	34	— ⅛
69¼	40½	67½	32	2,422,221	50	do B	....	Oct. 20, 27	900	34⅞	35¼	34⅞	35	— ⅛
15¼	3	12¾	1¾	199,370	N.P.	Panhandle Prod. & Refg	....	.....	1,200	3	3	2⅞	3	0
76	47½	80	47½	25,666	$100	do pfd	....	July 2, 23	.....	....	....	....	....	.....
..	..	27½	6	2,937,900	N.P.	Petroleum Corp. of America	37½cQ	Dec. 31, 30	12,700	8½	8¾	8¼	8⅝	+ ⅛
47	24¼	44¾	12	2,670,089	N.P.	Phillips Petroleum Co	50cQ	Jan. 2, 31	26,400	11⅞	12½	11¾	12	+ ⅜
3⅛	1	2½	⅛	1,184,917	$25	Pierce Oil Corp	....	.....	2,300	1	1	1⅞	1	0
51½	20	52	7½	150,000	100	do pfd	....	Feb. 1, 22	300	16	16	15½	15½	+ 1
5⅞	⅛	7⅛	1⅜	2,500,000	N.P.	Pierce Petroleum Corp	10c	Feb. 16, 31	1,600	2¾	2⅞	2⅝	2¾	0
65⅜	40½	54	11¼	2,435,670	$25	Prairie Oil & Gas Co	50cQ	Dec. 31, 30	9,100	15½	16⅛	14⅝	15	0
65	45	60	16⅝	4,050,000	25	Prairie Pipe Line Co	‡75cQ	Dec. 31, 30	25,000	21¾	23⅜	21¼	22⅛	+ ⅞
25⅛	4	31	1	749,017	50	Producers & Refiners Corp	....	Sept. 15, 23	500	4	4	3½	3⅝	— ⅜
46¾	25⅛	38	11⅛	56,907	50	do pfd	....	May 4, 25	70	14	14	14	14	— ⅛
30¾	20	27¼	7⅝	3,038,370	25	Pure Oil Co	....	Sept. 1, 30	9,300	9¼	9⅜	8¾	9¼	— ⅛
116	108	114¼	90½	130,000	100	do 8% pfd	$2Q	Jan. 2, 31	380	....	95¼	93⅝	93⅝	— 3¼
49⅛	22⅝	28¼	4⅛	2,891,735	25	Richfield Oil (California)	....	Sept. 1, 30	9,600	4¼	4¾	4¼	4⅜	0
42½	15	25⅝	5	1,235,270	N.P.	Rio Grande Oil Co	....	July 25, 30	2,100	7⅛	7⅝	7⅛	7¼	0
64	43⅛	56½	37⅛	951,310	$13.40	Royal Dutch (N. Y. shares)	$1.3404	Jan. 31, 31	4,000	37⅛	39½	37⅛	37⅝	+ ⅜
55¾	43⅝	48⅝	26	77,492	£2	Shell Trans. & Trading	96.6c	Jan. 23, 31	10	31	31	31	31	+ 1¾
31¾	19	25½	5⅛	13,069,076	N.P.	Shell Union Oil Corp	....	June 30, 30	17,430	8	8⅜	7½	7⅞	— ⅛
..	..	106¼	62	400,000	100	do pfd	$1.37½Q	Jan. 2, 31	1,300	57⅛	59	53⅞	53¾	— 3⅛
40⅛	15	37	5⅝	869,255	10	Simms Petroleum Co	....	Sept. 15, 30	700	8	8	7⅝	7⅝	— ⅜
45	21	32	9¾	5,455,665	N.P.	Sinclair Consolidated Oil Corp	25cQ	Jan. 15, 31	17,000	13⅜	13⅝	12⅞	13	0
111	103	112¼	86	154,685	100	do pfd	$2Q	Feb. 14, 31	100	103	103	103	103	0
46½	42	42	10⅛	1,097,650	$25	Skelly Oil Co	50cQ	Dec. 15, 30	2,200	9	9½	9	9⅛	+ ¼
..	..	99¾	43	120,000	100	do pfd	$1.50Q	Feb. 1, 31	700	46¾	48	46¾	47	0
..	..	106	98	750,000	100	S. O. Export Corp. pfd	$2.50S.A.	Dec. 31, 30	800	104¾	104¾	104	104	— ⅛
81⅞	51½	75	42¼	13,016,434	N.P.	S. O. California	62½cQ	Dec. 15, 30	16,600	46¼	46½	45⅛	45½	— ⅛
..	..	49	14⅜	320,000	$25	S. O. Kansas	50cQ	Dec. 15, 30	1,100	16	16	15½	15½	— ½
83	48	84⅞	43½	25,443,643	25	S. O. New Jersey	‡25cQ	Dec. 15, 30	59,100	46⅝	47	45¼	45⅝	— ⅜
48⅛	31¼	40⅝	19¾	17,809,530	25	S. O. New York	40cQ	Dec. 15, 30	37,900	22⅞	23¼	22⅛	22⅜	— ½
86⅜	55	70	39	1,416,911	N.P.	Sun Oil Co	‡25cQ	Dec. 15, 30	500	40⅞	40⅞	40½	40½	— 1
105½	100	107¾	97¾	100,000	$100	do pfd	$1.50Q	Dec. 15, 30	290	103¼	104	103	104	0
24	5¼	9⅜	¾	1,026,979	N.P.	Superior Oil Corp	....	.....	700	1¼	1½	1¼	1¼	0
71⅞	50	60½	28¼	9,850,724	$25	The Texas Corp	75cQ	Jan. 1, 31	44,500	30⅜	30⅞	29¾	30¼	— ⅝
23⅞	9½	14½	4	929,947	10	Texas Pacific Coal & Oil	....	Dec. 31, 29	900	4⅜	5	4¾	4⅞	— ⅛
23½	10	17⅜	5⅞	5,881,980	N.P.	Tide Water Associated Oil	30cS.A.	Feb. 16, 31	10,100	7⅛	7¼	7	7	— ¼
90⅞	74⅛	89¾	56	732,550	$100	do pfd	$1.50Q	Jan. 2, 31	2,200	63	63	61	61	— 2
40	14	31	13	2,191,820	N.P.	Tide Water Oil Co	20cQ	Dec. 31, 30	300	18	18	17	18	+ 1
97½	85⅛	94⅞	71	199,443	$100	do pfd	$1.25Q	Feb. 16, 31	400	80	80	76¾	76¾	— 3¼
..	..	24	12⅛	3,339,150	N.P.	Transcontinental Oil	....	May 1, 30	.....	....	....	....	....	.....
57	42⅛	50	20⅛	2,201,008	$25	Union Oil Co. (California)	50cQ	Feb. 10, 31	4,800	22	23	22	22½	+ ½
..	..	38½	23	1,254,048	N.P.	Union Tank Car Co	40cQ	Dec. 1, 30	2,600	22½	22⅝	22	22	— 1⅛
42⅞	15	27	4½	777,603	N.P.	Warner Quinlan Co	....	July 3, 30	6,300	4½	5⅛	4½	5	0
38	25	29½	26	490,000	N.P.	White Eagle Oil & Refg	....	Apr. 20, 30	.....	....	....	....	....	.....
29¼	12⅞	21	6½	428,967	N.P.	Wilcox Oil & Gas Co	....	May 10, 28	4,900	7¼	8⅞	7¼	8½	+ 1¼

*New high †New low ‡Also extra s-Stock §From close of preceding week. Total sales 510,230

Aviation Gasoline Prices

(Continued from Page 101)

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect March 23, 1931

	T.W.	Tax	Total T.W.
Newark, N. J	16.9	*	16.9
Baltimore, Md	16.2	4	20.2
Washington, D. C	17	2	19

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.

All above prices are on Stanavo Aviation Gasoline.

COLONIAL BEACON OIL CO.

New York City	17.5	2	19.5
Boston	17	2	19

S. O. PENNSYLVANIA

Philadelphia, Pa	16	3	19
Pittsburgh, Pa	16	3	19
Altoona, Pa	16	3	19

S. O. OHIO

Thru Ohio	15	4	19

Discounts given by S. O. Ohio: For airport delivery only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per month, 4c.

S. O. INDIANA

Chicago	14	3	17
Indianapolis, Ind	14.3	4	18.3
Detroit, Mich	14.8	3	17.8
Milwaukee, Wis	14.1	2	16.1
Minneapolis, Minn	15.2	3	18.2
St. Louis, Mo	13.4	2	15.4
Kansas City, Mo	13.9	2	15.9
Fargo, N. D	16.9	3	19.9
Huron, S. D	15.3	4	19.3
Wichita, Kan	12.8	3	15.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax.

S. O. LOUISIANA

New Orleans, La	18	6	24
Nashville, Tenn	20	5	25
Memphis, Tenn	19	5	24

2c per gal. discount off above posted retail t.w prices to dealers and commercial consumers.

S. O. NEBRASKA

Omaha	16.25	4	20.25

2c per gal. refund to reseller.

CONTINENTAL OIL CO.

Denver, Colo	13	4	17
Cheyenne, Wyo	17	4	21
Helena, Mont	18	5	23
Salt Lake City, Utah	18.5	3.5	22
Albuquerque, N. M	15	5	20
Boise, Ida	20.5	5	25.5

S. O. CALIFORNIA

Phoenix, Ariz	12	4	21.5
Los Angeles, Cal	16.5	3	19.5
San Francisco, Cal	17	3	20
Reno, Nev	21	4	25
Portland, Ore	17.5	4	21.5
Seattle, Wash	17.5	3	20.5
Spokane, Wash	21.5	3	24.5

Note: 4c per gallon added to t.w. price, in S O California territory, to customers taking delivery direct into the fuel tank of planes.

Oil Dividends

	Amount	Payable	Stock of Record
Associated Oil q	50c	Mar. 31	Mar. 14
British American Oil q	20c	Apr. 1	Mar. 14
Cities Service m	2½c	May 1	Apr. 15
do stock m	1/40	May 1	Apr. 15
do pfd m	50c	May 1	Apr. 15
do pref. BB m	50c	May 1	Apr. 15
do pref. B m	5c	May 1	Apr. 15
Gulf Oil q	37½c	Apr. 1	Mar. 20
Honolulu Cons. Oil q	50c	Mar. 16	Mar. 5
Illinois Pipe Line q	$4.50	Mar. 14	Feb. 16
Mexican Petroleum q	$3	Apr. 20	Mar. 31
do pfd. q	$2	Apr. 20	Mar. 31
Mountain & Gulf q	1c	Apr. 15	Mar. 31
Mountain Prod. q	25c	Apr. 1	Mar. 14
National Refining pfd. q	$2	Apr. 1	Mar. 14
do pfd. q	$2	July 1	June 15
do pfd q	$2	Oct. 1	Sept. 15
New Bradford Oil q	7c	Apr. 15	Mar. 31
Plymouth Oil q	25c	Apr. 30	Apr. 15
Pure Oil 8% pfd. q	$2	Apr. 1	Mar. 10
do 6% pfd. q	$1.50	Apr. 1	Mar. 10
do 5¼% pfd. q	$1.50	Apr. 1	Mar. 10
Salt Creek Cons. q	7c	Apr. 1	Mar. 14
Sinclair Cons. Oil q	25c	Apr. 15	Mar. 18
Skelly Oil pfd. q	$1.50	May 1	Apr. 1
South Penn Oil q	25c	Mar. 31	Mar. 14
S. O. Kentucky q	40c	Mar. 31	Mar. 16
S. O. Ohio q	62½c	Apr. 1	Mar. 16
do pfd. q	$1.25	Apr. 15	Mar. 31

N. P. N. Service Record

Some of the requests for information, data and advice, which were taken care of in various National Petroleum News offices in the past week are:

Massachusetts inquirer furnished with N.P.N. pages containing charts of prices for principal Mid-Continent petroleum products for 1929, 1928 and 1927.

* * *

Arkansas oil man furnished references to sources where he might obtain ideas for a general talk on oil, including American Petroleum Institute's "Handbook for Speakers."

* * *

Missouri oil jobber preparing for a speech told about gear lubricants and furnished list of all recent N.P.N. articles on grease and lubrication problems.

* * *

Texas inquirer told of reorganization of oil company listed on New York curb.

* * *

Wholesale manager of Florida oil jobber told whether he could safely convert an obsolete vacuum unit formerly used with a type of gasoline pump into an air compressor.

* * *

Ohio rubber manufacturer's representative furnished names and addresses of 14 of the country's largest marketers, together with names of men in charge of marketing.

* * *

Cuban oil importer given names and addresses of five refiners who make naphthas suitable as extraction basis for manufacturing fly-sprays and insecticides.

* * *

Iowa oil jobber referred to source for as much data as are available on amount of evaporation losses in shipping gasoline and light oils.

* * *

Florida oil company given names of refiners making special naphthas.

* * *

Canadian oil jobber furnished names and addresses of six Mid-Continent refiners making wax of specifications he mentioned and who sell in burlap bags.

* * *

Canadian petroleum association referred to possible source for common carrier pipeline map.

* * *

Massachusetts oil marketer referred to source for publications indicating the various products made from crude oil, for a motion picture film on gasoline refining and other general information on the oil industry for use in a talk.

* * *

Illinois inquirer given names and addresses of five distributors of liquefied petroleum gas, who distribute in his territory.

* * *

Connecticut oil distributor told what the representative evaporation loss of gasoline in storage tanks would be in his temperatures in the course of a year or month.

* * *

Wisconsin inquirer referred to source for complete details on making distillation tests on gasoline and calculating of tank car outages caused by temperature changes.

* * *

Kentucky oil marketer referred to source for a list of refiners of Pennsylvania grade crude.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

PETROLEUM TECHNOLOGIST, now employed, with laboratory, plant, development, and executive experience desires new connection. Graduate chemical engineer, 29 years old, married. Protestant. Address Box 678.

NEW CONNECTION DESIRED by man now in executive position in distribution department of active middle western company. Thorough knowledge sales, both tank car and distribution departments, construction, equipment, and economic operation. No practical knowledge production. Do not fear "tough" proposition. Salary and position not as important as proper connection and future prospect. Best references. Age thirty-one. Go anywhere. Address Box 682.

SALES EXECUTIVE desires permanent connection with opportunity for advancement with refiner or distributor. Twenty years experience in refining, lubricating engineering and sales management. Aggressive. Always produced results. Eastern location preferred. Address Box 683.

REFINERY SUPERINTENDENT — Twenty years operation and construction, of lubricating, skimming, asphalt, cracking plants. Desires new connection. Will accept foreign service. Address Box 674.

CHEMICAL ENGINEER. Five years experience as analytical and petroleum chemist. Eager for foreign service for responsible party. Address Box 681.

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

"Position Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

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Standard Oil Stocks on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Outstanding Shares	Par Value	Companies	Div. Rate	Last Paid	Transactions Week Ended March 21 Sales	First	High	Low	Last	Change§
18¾	13½	18½	12¼	.....	£1	Anglo-Amer. Oil voting stk. ctfs..	.....	June 5, 29	.....	....	....	....	....	.....
17⅛	11	19	12	.....	£1	do non-voting stk. ctfs.....	.....	June 5, 29	.....	....	....	....	....	.....
2½	⅝	1	⅜	500,000	N.P.	Atlantic Lobos Oil.....	.....	.....	1,600	⅜	½	⅜	½	+ ¼
4⅛	1	1½	½	200,000	$50	do pfd.....	.....	.....	3,300	1	2¼	1	2¼	+ 1¾
46½	25	25	11¼	40,000	25	Borne Scrymser Co.....	$1S.A.	Oct. 15, 30	50	8¼	8¼	8¼	8¼	— 2
74¼	55	69	39⅞	200,000	50	Buckeye Pipe Line Co.....	$1Q	Dec. 15, 30	100	49	49	49	49	+ ¾
210	130	184⅞	100¼	120,000	25	Chesebrough Mfg. Co.....	‡$1Q	Dec. 30, 30	.....	....	....	....	....	.....
11¾	5⅝	7⅝	3	.....	N.P.	Creole Petroleum Co.....	.....	.....	1,800	3	3¼	3	3	0
75¾	40	65¾	20¼	30,000	$50	Cumberland Pipe Line Co.....	$1Q	Dec. 15, 30	.....	....	....	....	....	.....
70½	42	54¾	26	50,000	100	Eureka Pipe Line Co.....	$1Q	Feb. 2, 31	50	27¾	27¾	27¾	27¾	— ¼
...	...	6¾	2½	280,000	N.P.	Galena Oil Corp. w.i.....	.....	.....	.....	....	....	....	....	.....
...	...	37¼	23½	.....	N.P.	General Petroleum Corp. w.i.....	.....	.....	200	22⅞	22⅞	22½	22½	+ ⅛
128	74¾	119	57¼	2,974,645	$25	Humble Oil & Refg. Co.....	‡50cQ	Jan. 1, 31	3,600	57	57¾	56	56	0
41	22	30	15	26,490,741	N.P.	Imperial Oil, Ltd.....	12½cQ	Dec. 1, 30	3,100	15⅜	16⅜	15⅜	16	+ ⅝
42⅛	26	41	14½	300,000	$10	Indiana Pipe Line Co.....	50cQ	Feb. 14, 31	500	18¼	18¼	16	16	— 2
29⅜	15	24	11⅜	14,247,880	N.P.	International Petroleum Co.....	25c	Dec. 15, 30	10,900	12⅞	13	12¼	12¼	— ½
25⅞	10½	22⅜	11½	509,000	$12½	National Transit Co.....	25cQ	Dec. 15, 30	700	13	14½	13	14½	+ 1¼
17¾	10	21	10⅛	100,000	10	New York Transit Co.....	40cQ	Jan. 15, 31	400	11¼	11¼	11⅜	11⅜	— ⅛
63	41	54	26¼	40,000	50	Northern Pipe Line Co.....	$2S.A.	Jan. 2, 31	50	29¼	29¼	29¼	29¼	0
105½	103¾	108	100⅜	600,000	100	Ohio Oil pfd.....	$1.50Q	Dec. 15, 30	500	98½	100	98½	100	+ 1⅜
44½	18⅜	32	12	400,000	25	Penn Mex. Fuel Co.....	$1	Dec. 15, 30	.....	....	....	....	....	.....
50	29	33	4⅞	160,000	25	Solar Refining Co.....	.....	Dec. 20, 29	100	7¾	7¾	7¾	7¾	— ¼
23½	13	20¼	6¾	100,000	10	Southern Pipe Line Co.....	$5	Dec. 1, 30	200	13¼	13⅜	13¼	13⅜	+ ⅜
60¾	35⅜	45⅞	18	1,200,000	25	South Penn Oil Co.....	50cQ	Dec. 31, 30	1,100	18⅜	19⅛	18⅜	18½	— ⅜
70	45	64	32	35,000	50	Southwest Pa. Pipe Lines.....	$1Q	Dec. 31, 30	50	34	34	34	34	— 1
63	45	59⅞	30	16,850,587	25	S. O. Indiana.....	62½cQ	Dec. 15, 30	21,200	32	33⅜	32	32¼	+ ¼
46⅞	29	40⅛	18⅞	2,577,124	10	S. O. Kentucky.....	‡40cQ	Dec. 31, 30	4,100	22⅝	22⅝	21⅜	22⅛	+ ⅛
50¼	40	48⅞	34	188,159	25	S. O. Nebraska.....	62½cQ	Dec. 20, 30	400	32⅝	32⅝	32½	32½	— ⅜
129	60	108½	43¼	560,000	25	S. O. Ohio.....	62½cQ	Jan. 2, 31	200	50⅜	51½	50⅜	51	— 1⅜
...	...	...	...	120,000	100	do 5% pfd.....	$1.25Q	Jan. 15, 31	160	105	105	104¾	104¾	0
124½	113¼	122	115¼	70,000	100	do 7% pfd.....	$1.75Q	Dec. 1, 30	.....	....	....	....	....	.....
18	5⅛	10	4	34,158	25	Swan Finch Oil Corp.....	.....	Jan. 15, 29	10	10	10	10	10	— 2⅜
133¾	75½	97⅞	45⅜	5,139,887	25	Vacuum Oil Co.....	‡$1Q	Dec. 20, 30	8,800	57¾	57¾	54⅝	55⅞	0

*New high †New low ‡Also extra §From close of preceding week.

Independent Oils on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Par Value	Companies	Transactions Week Ended March 21 Sales	First	High	Low	Last	Change§
.72	⅛	⅜	1/16	$1	Amer. Contr. Oilfields	.....	....	....	....	....	.....
8⅝	1⅛	4½	½	5	Amer. Maracaibo.....	3,200	1⅛	1¼	1⅛	1¼	0
4¾	1	1⅜	1⅛	10	Argo Oil.....	.....	....	....	....	....	.....
26	3¾	16¾	4⅝	N.P.	Arkansas Nat. Gas...	2,700	5½	6½	5½	6⅛	+ ⅝
24¾	6½	16⅝	4¾	N.P.	do Class A.....	10,400	5⅝	6	5⅜	6	+ ¼
9	4	8½	6¼	10	do pfd.....	.....	....	....	....	....	.....
70	50	28½	13½	N.P.	British American Oil..	100	13½	13½	13½	13½	— ⅛
4⅞	⅜	2¾	⅝	¼	Carib Syndicate.....	4,800	1⅜	1⅝	1¼	1½	+ ¼
68½	20	44¼	13⅜	N.P.	Cities Service.....	238,200	17¼	20¾	17¼	20⅝	+ 3⅝
99¼	84	93⅞	52	100	do pfd.....	800	83⅜	83⅞	83	83¾	+ ⅜
9¼	8	9	7¼	10	do pref. B.....	1,500	7⅛	7⅛	7	7	— ⅛
96	81	89⅞	80	100	do pref. BB.....	.....	....	....	....	....	.....
1⅛	¼	1/16	1/16	1	Colombia Syndicate..	2,900	1/16	1/16	1/16	1/16	— 1/16
15	3⅞	8¼	1⅛	N.P.	Colon Oil Corp.....	400	2¾	2¾	2½	2⅝	+ ⅛
..	..	21	3⅜	N.P.	Columbia Oil & Gas..	800	5½	5⅝	5¼	5⅜	— ¼
11⅜	2½	5⅞	2	10	Consolidated Royalty	.....	....	....	....	....	.....
135	42	74¾	1⅜	N.P.	Cosden Oil Co.....	100	2¼	2¼	2⅛	2⅛	+ ⅛
87	55	70	10¼	100	do pfd.....	.....	....	....	....	....	.....
2½	¼	1	¼	N.P.	Crown Central Pet...	100	½	½	½	½	0
11½	4	..	..	N.P.	Crystal Oil.....	.....	....	....	....	....	.....
51¾	51¾	..	..	100	do pfd.....	.....	....	....	....	....	.....
26	6½	13½	4¼	N.P.	Darby Petroleum.....	100	4	4	3⅜	3⅜	— ⅜
..	..	21¾	21½	N.P.	do new.....	.....	....	....	....	....	.....
11	2	11	2	N.P.	Derby Oil & Refg.....	400	4	4¾	4	4⅜	+ ⅜
44	17	60	30	N.P.	do pfd.....	.....	....	....	....	....	.....
..	..	12	12	10	Devonian Oil.....	.....	....	....	....	....	.....
209	115	166⅜	58½	$25	Gulf Oil Corp.....	7,100	66	68⅞	65	67	+ 2½
7½	1⅜	4	2¼	N.P.	Homaokla Oil.....	.....	....	....	....	....	.....
..	..	47½	12⅜	N.P.	Indian Territory A...	800	16½	16½	16⅜	16½	0
..	..	53½	12⅜	N.P.	do B.....	500	15⅞	16¼	15⅞	16¼	+ ¼
2⅞	⅜	1¾	⅜	10	Intercontinental Pet..	3,800	⅝	⅝	½	1/16	+ 1/16
3⅝	1¼	3	⅞	N.P.	Kirby Petroleum.....	300	1¼	1¼	1¼	1¼	— ⅛
6⅜	1	4¾	½	N.P.	Leonard Oil & Dev...	2,100	1¼	1¼	1⅜	1¼	— ⅛
38⅞	18	29	5	N.P.	Lion Oil Refg.....	500	6¼	6¼	6	6	— ⅛
67⅞	28	55⅞	19⅝	N.P.	Lone Star Gas.....	5,000	22¾	23⅛	22⅜	23	+ ⅞
..	..	31	5½	$25	MacMillan Petrol.....	.....	....	....	....	....	.....
2⅞	¼	½	⅛	1	Magdalena Synd.....	2,500	1/16	⅛	⅛	⅛	+ 1/16
38½	14	16	3	N.P.	Margay Oil.....	100	3½	3½	3½	3½	— ½
6⅜	2¼	7½	1⅜	N.P.	Mexico Ohio Oil.....	1,100	3¾	4¼	3¾	4¼	— 1⅛
..	..	11⅞	2¼	N.P.	Middle States A v.t.c.	400	3½	3½	3⅜	3⅜	— ⅝
..	..	6	¾	N.P.	do Class B v.t c.	400	1	1⅛	1	1⅛	0
42	8	36¼	5	5	Missouri-Kansas P.L.	7,900	9⅝	9¾	9⅛	9⅜	— ⅜
1½	¼	¾	⅜	1	Mountain & Gulf Oil..	200	⅜	⅜	⅜	⅜	— ⅛
22⅞	7	12⅛	4½	10	Mountain Producers..	1,500	5¼	5¼	4¾	4¾	— ⅛
43⅞	24	41⅜	19⅞	N.P.	Nat. Fuel Gas.....	3,400	23⅜	23⅞	23	23½	— ⅛
5	2¼	3½	1⅜	$5	New Bradford Oil....	1,300	1⅜	1⅜	1⅜	1¼	0
4¾	3⅛	3⅛	2⅛	10	New England Fuel...	.....	....	....	....	....	.....
24½	11⅜	16⅞	4	25	N. Y. Pet. Royalty....	.....	....	....	....	....	.....
18½	6⅛	11¼	2⅛	N.P.	North Central Texas	1,100	3	3	2½	2½	— ⅝
19¼	8⅛	11⅝	3⅞	N.P.	Oilstocks Ltd. A.....	800	4⅛	4⅞	4⅛	4⅞	+ ¾
18¼	8½	11½	4⅜	N.P.	do B.....	.....	....	....	....	....	.....
26⅝	12⅛	19½	6½	N.P.	Pacific Western Oil...	700	11	11	10	10	— 1½
3½	½	2½	¼	N.P.	Pandem Oil.....	16,200	1/16	½	1/16	½	0
10½	2¼	4⅝	1	N.P.	Pantepec Oil.....	700	1½	1½	1½	1½	0
25½	13⅛	15	13⅛	$25	Paragon Refg. B. ctfs.	.....	....	....	....	....	.....
28	17	29	19⅛	N.P.	Petroleum Corp.....	.....	....	....	....	....	.....
..	..	5⅞	½	....	do warrants.....	700	¾	¾	⅝	¾	0
37	22	27½	16¼	N.P.	Plymouth Oil.....	1,600	12⅛	12½	12⅛	12¼	+ ⅛
16	9	10½	3	$5	Red Bank Oil.....	.....	....	....	....	....	.....
8⅛	1⅛	5⅜	1	N.P.	Reiter-Foster Oil.....	200	1⅛	1⅜	1⅛	1⅜	+ ⅛
25¼	19	23½	7	25	Richfield Oil pfd.....	8,800	6⅛	6¾	6⅛	6¾	+ ¾
29	13	25	2¼	N.P.	Root Refining pr. pfd.	200	3	3	3	3	— ½
11	3	8⅝	2	N.P.	Ryan Consolidated...	1,800	2¼	2¼	2	2	— ½
5⅞	1⅞	2½	½	10	Salt Creek Consol.....	.....	....	....	....	....	.....
25⅞	9	15¼	5¼	10	Salt Creek Producers.	900	6¾	6¾	6¼	6⅝	0
33⅛	10	8	1¾	25	Shreveport El Dorado	.....	....	....	....	....	.....
..	..	39⅛	39	25	Signal Oil & Gas A...	.....	....	....	....	....	.....
24	9	17	6	N.P.	Southland Royalty...	1,000	5½	5½	5⅛	5⅜	+ ¼
12	4	10	2	5	Sunray Oil.....	4,300	4	4	3⅞	4	0
23	7⅛	19½	8	N.P.	Texon Oil & Land....	.....	....	....	....	....	.....
81⅛	8⅞	16	8	10	Venezuela Mexico....	.....	....	....	....	....	.....
6½	1⅛	4½	¾	5	Venezuela Petroleum.	2,700	1⅛	1¼	1	1⅛	0
9⅛	2	5	2	1	Woodley Petroleum...	.....	....	....	....	....	.....
5⅜	¼	2½	⅜	N.P.	Y Oil & Gas.....	200	⅜	¾	⅜	¾	+ ⅜

*New High †New Low §From close of preceding week.

New York Bonds

Week Ended March 20

	High	Low	Last	Change
Asso. Oil gold 6s.....	104	103¼	103¼	0
Atlantic Refg. deb. 5s...	102	101	102	+ ⅜
Cal. Pet. 5s.....	96¼	96¼	96¼	— ⅛
Cal. Pet. 5½s.....	100½	100	100	— ¼
General Pet. 5s.....	102¾	102¾	102¾	+ ¼
Humble Oil & Refg. 5s...	102¼	101¾	102	+ ⅛
Humble Oil & Refg. 5½s	102½	102⅜	102⅜	0
Pan Amer. P & T 6s.....	102½	101⅝	102	0
Pan Amer. P & T 6s.....	64⅛	63½	64⅛	+ ⅛
Phillips Pet. 5¼s.....	80½	79	79	—1½
Pierce Oil deb. 8s.....	103	103	103	0
Pure Oil 5½s.....	91½	90	90	—1
Pure Oil 5½s.....	89½	65¼	88¼	+3¼
Richfield Oil Calif. 6s....	61½	60	60	— ½
Shell Union Oil 5s.....	78¾	77¼	77½	0
Shell Union Oil 5s with war.	80⅝	79	79	— ½
Sinclair Con. Oil 7s.....	98½	97¼	98⅜	+1⅛
Sinclair Con. Oil 6½s.....	96	94⅞	95	—1⅛
Sinclair Con. Crude 5½s.	102⅛	101⅜	102	— ⅛
Sinclair Pipeline 5s.....	100⅜	99¾	100⅝	+ ¼
Skelly Oil 5½s.....	76½	75	76½	+1½
S. O. N. J. 5s.....	104	103½	103⅞	+ ⅜
S. O. N. Y. 4½s.....	100¼	99½	99½	0
Union Oil of Calif. 6s A..	106⅛	106	106⅛	— ⅛
Union Oil of Calif. 5s C..	100½	100⅛	100⅛	— ½
Union Oil of Calif. 5s war.	96⅞	96⅞	96⅞	— ⅛
Warner-Quinlan 6s.....	56	55½	55½	—1½
White Eagle Oil 5½s.....	103	103	103	+ ¼

New York Curb Bonds

Week Ended March 20

	High	Low	Last	Change
Beacon Oil 6s '36.....	98½	97½	98¼	+ ¼
Cities Serv. 5s '66.....	74	72¾	73	+ ½
CitiesServ. 5s '50.....	82⅝	77	82⅝	+5⅞
Cities Serv. G. 5½s '42..	79	78¼	78¼	—1½
Cities Serv. G. P. 6s '43..	86¾	86¼	86¼	—1¼
Cont. Oil 5¼s '37.....	93¾	93½	93½	+ ¼
Empire O & R 5½s '42..	76½	75⅜	75⅜	— ⅞
Gulf Oil 5s '37.....	102½	102¼	102¼	+ ¼
Gulf Oil 5s '47.....	103½	103	103	— ¼
Indep. Oil 6s '39.....	96¾	95	96¾	+1¾
Sun Oil 5½s '39.....	102⅜	102¼	102¼	+ ½
Valvoline Oil 7s '37.....	98½	96½	98⅛	+ ⅛

Pittsburgh Stock Exchange

Transactions Week Ended March 20, 1931

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas....	130	6	5⅝	6	+ ½
Devonian Oil....	270	6	5½	5½	— ½
Lone Star Gas....	3,481	23½	22⅛	23	+ ¾
Plymouth Oil....	360	12½	12¼	12¼	+ ¼
Shamrock O. & G.	1,105	10½	9⅞	10	0
West. Pub. Service	2,450	13¼	12⅛	13	+ ½

INDEX TO ADVERTISERS

This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

Adamson Mfg. Co.....
Alco Products, Inc.....
Allis Co., Louis.....
American Can Co.....
American Flange & Mfg. Co.....
American Oil & Grease Corp.....
Anderson-Prichard Oil Corp.....
A. P. W. Paper Co.....
Archineers, The.....
Associated Alloy Steel Co., Inc..... 53
Associated Business Papers, Inc..... 75
Automotive Distillate Corp.....

Baltimore Enamel & Novelty Co.....
Barnsdall Refineries, Inc.....
Battenfeld Grease & Oil Corp..... 7
Benjamin Electric Mfg. Co.....
Bennett Export Corp..... 79
Berry Sons' Co., Jas. B.....
Bethlehem Steel Co..... 62
Birmingham Tank Co.....
Blackmer Pump Co.....
Blaw-Knox Co.....
Bowser & Co., Inc., S. F.....
Breuer Electric Mfg. Co.....
Brodie Co., Inc., Ralph N.....
Brookins Mfg. Co.....
Brown Instrument Co.....
Brown Sheet Iron & Steel Co..... 99
Buckeye Iron & Brass Works..... 2
Buffalo Meter Co.....
Butler Mfg. Co.....

Calumet Refg. Co.....
Canfield Oil Co.....
Carbondale Machine Co..... 58
Champion Pneumatic Mach. Co.....
Champlin Refining Co.....
Chek-Chart Corp.....
Chicago Bridge & Iron Works.....
Cincinnati Advertising Products Co..... 13
Cincinnati Ball Crank Co.....
Classified Advertising..... 109
Cleveland Brass Mfg. Co.....
Col-Tex Refg. Co.....
Columbian Steel Tank Co.....
Continental Can Co., Inc.....
Continental Oil Co.....
Continental Refining Co.....
Continental Rubber Works.....
Continental Supply Co.....
Correct Measure Co.....76–95–107
Crown Central Petroleum Corp.....Fourth Cover
Curtis Pneumatic Machinery Co.....
Cushing Refining & Gasoline Co.....

Daugherty & Son Refg. Co., W. H.....
Davis Welding & Mfg. Co.....Third Cover
Deep Rock Oil Corp.....
Dempster Mill Mfg. Co.....
Detroit Testing Laboratory..... 95
DeVilbiss Co.....
Devine Mfg. Co., J. P.....
Dill Mfg. Co.....
Dodge Brothers.....
Draper Mfg. Co.....
Dyestuffs & Chemicals, Inc.....
du Pont de Nemours & Co., Inc., E. I.....

Economy Engineering Co.....
Edeleanu Company, Ltd.....
Edwards Mfg Co.....
Edward Valve & Mfg. Co.....
El Dorado Refg. Co..... 71
Empire Oil & Refg. Co.....
Equipment Mfg. Co., Inc.....
Erie Meter Systems, Inc.....
Ethyl Gasoline Corp.....

Farrell Mfg. Co..... 8–9
Ferro Machine & Foundry Co..... 4–5
Firestone Tire & Rubber Co.....
Fiske Bros. Refg. Co.....
Foster-Wheeler Corp.....
Foxboro Co., Inc.....
Franklin Creek Refg. Corp.....
Freedom Oil Works Co.....
Fruehauf Trailer Co.....

Galena Oil Corp.....
General American Tank Car Corp.....
General Electric Co.....
General Motors Truck Co..... 37

Gewert Mfg. Co.....
Gilbert & Barker Mfg. Co.....14–15
Glass Decorating Corp.....
Globe Machinery & Supply Co.....
Globe Oil & Refg. Co.....
Goodyear Tire & Rubber Co., Inc..... 93
Gott Mfg. Co., H. P.....
Granberg Meter Corp.....
Graver Tank & Mfg. Corp.....
Gray Processes Corp.....
Grinnell Co.....
Griscom-Russell Co..... 58
Gulf Ref. Co..... 107

Hagerstown Shoe & Legging Co.....
Hollister-Whitney Co.....
Huffman Mfg. & Co.....
Humble Oil & Refg. Co.....
Hybnickel Alloys Co.....

Independent Oil & Gas Co.....
Independent Refining Co.....
Industrial Oil Corp..... 83
International Harvester Co.....
International Lubricant Corp.....

Jenkins Bros..... 97
Jenkins Engineering Co..... 43

Kellogg Mfg. Co.....
Kellogg Co., M. W.....58–Insert
King-Seeley Corp..... 102
Klenzmotor Corp.....

Lapeer Trailmobile.....
Leach Co., C. H.....
Leader Iron Works, Inc.....
Leland Electric Co.....
Leonard Construction Co.....
Limbert & Co., Geo. B.....
Linde Air Products Co.....
Lion Oil Refining Co.....
Louisiana Oil Refg. Corp.....
Luce Mfg. Co..... 95

McDonald Mfg. Co., A. Y.....
McKee & Co., Arthur G.....
McLaughlin Gormley King Co.....
Macbeth-Evans Glass Co.....
Marathon Oil Co.....
Marnall Steel Products, Inc.....
Mars Company.....
Martin & Schwartz, Inc.....
Master Electric Co.....
Merco Nordstrom Valve Co.....
Merit Equipment Corp..... 10
Metal Hose & Tubing Co.....
Meyercord Co.....
Mid-Continent Petroleum Corp.....
Miller Sons' Co., A. D.....
Milwaukee Tank Works.....
Morrison Bros..... 16

National Brake & Electric Co.....
National Equipment Co., Inc.....
National Foam System, Inc.....
Nat'l Petroleum Mutual Fire Ins. Co.....
National Petroleum News.....11–12–54–104
National Pipe Products Corp.....
National Pumps Corp..... Second Cover
National Refining Co..... 99
National Steel Barrel Co.....
National Transit Pump & Machine Co..... 51
National Tube Co.....
Neptune Meter Co..... 3
North American Car Corp..... 107

Oakite Products, Inc.....
Ohio Pattern Works & Foundry Co.....
Ohio Steel Foundry Co.....
Oil Conservation Engineering Co..... 34
Oildraulic, Inc.....
Oil Industry Mailing List Co.....
Oliver United Filters Inc..... 58
Ottawa Mfg. Co.....
Owens-Illinois Glass Co.....
Owosso Boiler & Welding Works.....

Patent Chemicals, Inc.....
Patent Fuels & Color Corp.....
Pekin Foundry & Mfg. Co.....
Perfection Mfg. Co.....
Petroleum Exchange Corp.....
Petroleum Iron Works Co..... 38
Pharis Tire & Rubber Co.....
Pittsburgh-Des Moines Steel Co.....
Pittsburgh Equitable Meter Co.....
Platt Co., W. C..... 99
Pressed Steel Tank Co.....
Primrose Petroleum Co..... 102
Producers & Refiners Corp.....
Pure Oil Co.....
Pyrene Mfg. Co.....

Quaker State Oil & Refg. Co.....
Quincy Compressor Co.....

Reading Iron Co.....
Reo Motor Car Co.....
Republic Steel Corp.....
Revere Electric Co .....
Rhodes Co., Jay B.....
Roper Corp., Geo. D.....
Rotary Lift Co..... 84

Schrader's Son, Inc., A..... 83
Scott Welded Products, Inc.....
Service Equipment Co.....
Service Station Equip. Co..... 79
Shand & Jurs Co.....
Sharpsville Boiler Works Co.....
Sinclair Refining Co.....
Sistersville Tank & Boiler Works .....
Skelly Oil Co.....
Sonneborn Sons, L.....
Southwest Pump Co.....
Standard Steel Works.....
Stockholm Pipe & Fittings Co.....
Strong-Scott Mfg. Co.....
Sturtevant Co., B. F.....
Sun Oil Co.....
Sun Shipbuilding & Dry Docks Co.....
Superior Oil Works.....

Tagliabue Mfg. Co., C. J.....
Texas Pacific Coal & Oil Co.....
Tide Water Oil Co.....
Tokheim Oil Tank & Pump Co.....
Truscon Steel Co.....
Tube Turns, Inc..... 61

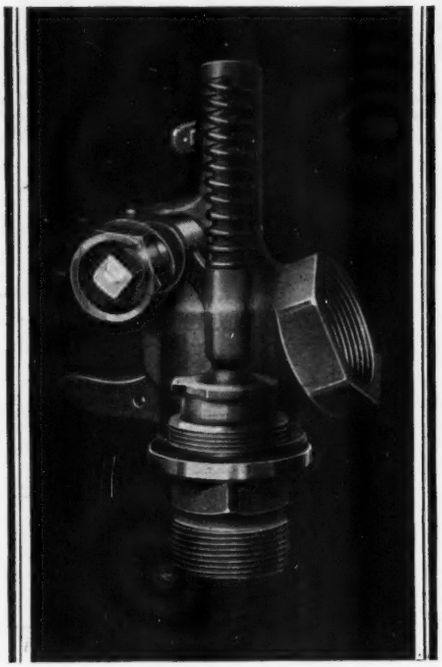
Union Carbide & Carbon Corp.....
Union Metal Mfg. Co.....
U. S. Air Compressor Co.....
Union Oil Products Co.....
Universal Oil Products Co.....56–57
Universal Pump & Tank Corp.....

Vacuum Oil Co.....
Valvoline Oil Co.....
Viking Pump Co.....
Vilter Mfg. Co..... 62
Viscosity Oil Co.....
Vogt Machine Co., Henry..... 67
Volcker Mfg. Co.....

Wackman Welded Ware Co.....
Waco Garment Mfg. Co.....
Walworth Co..... 1
Wayne Co..... 6
West Coast Equipment Co.....
Wheaton Brass Works, A. W..... 112
White Co.....
White Oak Corp.....
Wheeling Metal & Mfg. Co.....
Wickwire Spencer Steel Co.....
Wilcox Oil & Gas Co., H. F.....
Willock Oil Corp.....
Wilson & Bennett Mfg. Co.....
Winkler-Koch Eng. Co..... 55
Wolverine-Empire Refg. Co., Inc.....
Worthington Pump & Mach. Co.....

York Safe & Lock Co.....

Whether you prefer the *Stuffing Box* ABOVE *or* BELOW the Valve—



Type A Truck Tank Faucet

If you prefer the stuffing box *above* the valve, Type A should be your choice. For fifteen years Type A has served the oil industry—and for fifteen years Type A has steadfastly maintained its reputation for *flawless performance.* Today, with many of the finest oil companies in the United States, it is *standard equipment!* The transparent view at the left shows the internal structure, and how it operates. Like all Wheaton Faucets, Type A is *self-closing*—the operator must *hold* the valve open, as it closes the instant the wrench is released.

the best of either type of faucet is a WHEATON

Type 24 Truck Tank Faucet

If you prefer the stuffing box *below* the valve, Type 24 is the finest faucet your money can buy. It is *counterbalanced*—and that *assures* slow, smooth, easy action. The transparent view at the right shows the internal structure of this faucet. When the valve closes—as the plunger goes down—the chamber above the counterbalance flange must fill, and to do so the liquid must pass between the close-fitting flange and the chamber wall. The slow, gentle closing action of Type 24 relieves both the faucet and the connections of all vibrations and shocks.

DO you prefer the stuffing box *above* or *below* the valve? That alone determines your choice between these two Wheaton Faucets. In either case, you are certain of securing *the finest faucet of its type ever built.* And, whether you choose Type A or Type 24, depending on your preference of design, you will be selecting a faucet that is typically *Wheaton* in design—Wheaton in material and craftsmanship, too. And that means a faucet that is made of special-analysis bronze, which neither crystallizes nor corrodes; a faucet built to designs drawn from years of experience and study; a faucet, finally, which has that precise *fit* and perfect *finish* which are found in all Wheaton products.

We will gladly send you a sample of either or both of these two Wheaton Faucets for a 30 or 60 days' trial. If it does not prove entirely satisfactory, you may return it for credit or refund.

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